

**BY ORDER OF THE COMMANDER  
97TH AIR MOBILITY WING**

**ALTUS AIR FORCE BASE INSTRUCTION  
15-101**



**17 JUNE 2015**

**Weather**

**WEATHER SUPPORT**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**ACCESSIBILITY:** Publications and forms are available for downloading or ordering on the e-Publishing website at [www.e-Publishing.af.mil](http://www.e-Publishing.af.mil)

**RELEASABILITY:** There are no releasability restrictions on this publication.

---

OPR: 97 OSS/OSW

Certified by: 97 OG/CC  
(Col Michael J. Finch)

Supersedes: ALTUSAFB15-101,  
14 June 2013

Pages: 97

---

This instruction implements Air Force Policy Directive (AFPD) 15-1, *Air Force Weather Operations*. It establishes responsibilities and weather support procedures. It provides general information for weather services, including weather observations and forecasts; weather warnings, watches, and advisories; space weather supported services; dissemination of information; and specialized and reciprocal support. This publication applies to units assigned to the 97th Air Mobility Wing (97 AMW) and subordinate units, and all other tenant units assigned to, or supported by Altus Air Force Base (AAFB). This publication applies to Air National Guard (ANG) and Air Force Reserve Command (AFRC) units stationed at AAFB. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional's chain of command. This publication may be supplemented at any level, but all direct Supplements must be routed to the OPR of this publication for coordination prior to certification and approval. No waivers may be granted for any part of the publication. See Attachment 1 for a glossary of references and supporting information.

## ***SUMMARY OF CHANGES***

This revision addresses some changes to new observation requirements IAW AFMAN 15-111, *Surface Weather Observations*. There are changes to notification procedures and lead times for watches, warnings, and advisories. There are also numerous administrative updates.

1.	General .....	3
Table 1.1.	WF Duty Priorities. ....	4
Table 1.2.	AOL Observing Limitations .....	6
2.	Weather Flight Operations .....	7
3.	Mission Information .....	10
Table 3.1.	KC-135 Stratotanker General Characteristics. ....	11
Table 3.2.	C-17 Globemaster General Characteristics .....	11
4.	Mission Services .....	11
Table 4.1.	Meteorological Watch Variations. ....	12
Table 4.2.	IFM Standard Mission-Limiting Criteria .....	14
Table 4.3.	Local Space Weather Criteria (HF-Impacts). ....	16
Table 4.4.	Local Space Weather Criteria (UHF-Impacts). ....	17
Table 4.5.	Local Space Weather Criteria (GPS-Impacts). ....	17
Table 4.6.	Local Space Weather Criteria (High-Altitude Radiation Dosage). ....	17
Table 4.7.	Space Weather Product Dissemination. ....	17
5.	Airfield Services .....	19
Table 5.1.	Mandatory Supplementary Weather Conditions. ....	21
Table 5.2.	WF Voice Dissemination Listing. ....	22
Table 5.3.	BWW Ceiling Criteria. ....	23
Table 5.4.	BWW Visibility Criteria. ....	24
Table 5.5.	BWW Additional Criteria. ....	24
6.	Staff Weather Services .....	26
7.	Resource Protection .....	28
Table 7.1.	AAFB Weather Watches and Warnings. ....	29
Table 7.2.	Observed Weather Advisories. ....	30
Table 7.3.	Rules for Issuing, Amending, Extending, and Canceling WWAs .....	31
Table 7.4.	WWA Receipt Agencies. ....	33
8.	Reciprocal Support .....	34

<b>Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION</b>	<b>40</b>
<b>Attachment 2—SPECIAL OBSERVATION CRITERIA</b>	<b>47</b>
<b>Attachment 3—OBSERVATION/PIREP FORMAT</b>	<b>50</b>
<b>Attachment 4—TAF FORMAT/CRITERIA</b>	<b>53</b>
<b>Attachment 5—WATCH/WARNING/ADVISORY FORMAT</b>	<b>56</b>
<b>Attachment 6—FREQUENTLY USED AIRSPACE</b>	<b>59</b>
<b>Attachment 7—METEOROLOGICAL SENSING EQUIPMENT/OBSERVATION LOCATIONS</b>	<b>61</b>
<b>Attachment 8—97 AMW SUPPORTED ACTIVITIES/OPERATIONS WEATHER SENSITIVITIES</b>	<b>63</b>
<b>Attachment 9—SAMPLE STAFF WEATHER PRODUCTS</b>	<b>83</b>
<b>Attachment 10—SAMPLE MISSION WEATHER PRODUCTS</b>	<b>88</b>
<b>Attachment 11—SAMPLE SPACE WEATHER PRODUCTS</b>	<b>95</b>

## **1. General**

1.1. The 97th Operations Support Squadron (97 OSS) Weather Flight (WF) provides or arranges weather services and support to the 97 AMW and other associate units assigned to AAFB. The WF is the OPR for all weather services for AAFB. This instruction establishes requirements and outlines duties and responsibilities of the WF and for reciprocal support requirements with other AAFB agencies.

1.2. Implementation. This instruction covers daily operations to include exercise and contingency operations. Unless superseded by Emergency War Orders (EWO), this instruction will be followed during wartime operations.

1.3. Concept of Operations. The WF is the single point of contact for weather information and will provide or arrange all weather services for units assigned to AAFB. The WF leverages the support of the 26th Operational Weather Squadron (26 OWS) for 30-hour Terminal Aerodrome Forecasts (TAFs), Meteorological Watch (METWATCH), resource protection, and flight weather briefing services.

1.3.1. Delineation of Duties. Weather duties are split between the WF and the 26 OWS. The WF is the focal point for all weather support at AAFB.

1.3.2. Airfield Operating Hours. During airfield operating hours, the WF provides weather observations, “eyes-forward” support for the 26 OWS, Mission Weather Products (MWPs), METWATCH, Mission Watch (MISSIONWATCH), flight weather briefings, staff weather services, climatological data, observed warnings and advisories, Pilot-to-Metro-Service (PMSV) and resource protection. In addition, the WF maintains the capability and if required, augments the 26 OWS in producing TAFs and forecast watches, warning and advisories (WWAs).

1.3.3. Airfield Closure Hours. During hours of airfield closure, weather services are provided by the 26 OWS IAW AFI 15-128, *Air Force Weather Roles and Responsibilities*. At a minimum, services provided include METWATCH, resource protection in the form of forecasted/observed WWAs, and flight weather briefing support. During hours of closure, the WF will have a technician on-call to provide weather support for severe weather events, operational/contingency missions, or any other resource protection issues.

1.3.4. Contact Information. The physical location of the AAFB WF is 603 E Avenue, Building 185, Altus AFB, OK 73523. The official unit mailing address is 101 S. 6th Street, Altus AFB, OK 73523. The weather technician is available at DSN 866-7522 or commercial (580) 481-7522; Flight Chief: DSN 866-6837 or commercial (580) 481-6837; Flight Commander: DSN 866-5896 or commercial (580) 481-5896; FAX: DSN 866-7862 or commercial (580) 481-7862 and e-mail [97oss.osw@us.af.mil](mailto:97oss.osw@us.af.mil).

1.4. Duty Priorities. The WF duty priorities are outlined in Table 1.1. These were developed IAW AFMAN 15-129V2, *Air and Space Weather Roles and Responsibilities-Exploitation*. These priorities exist to balance limited manning and mission critical tasks. Duty priorities focus efforts during peak work periods prone to task saturation and priority conflicts. Weather technicians will use sound judgment when complying with these duty priorities, especially where there is imminent danger to life and property.

**Table 1.1. WF Duty Priorities.**

Priority	Duties
1	Perform Emergency War Order (EWO) Taskings
2	Execute Weather Flight Evacuation/Continuity of Operations Procedures
3	Respond to Aircraft/Ground Emergencies
4	Provide Severe Weather Action Procedure (SWAP) Operations
5	Respond to Pilot-to-Metro Service (PMSV) Contacts
6	Provide Supervisor of Flying (SOF) support
7	Provide Resource Protection (Issue Weather Watches, Warnings, and Advisories)
8	Observe and Disseminate Surface Weather Observations Locally and Longline
9	Conduct Coordinated METWATCH/MISSIONWATCH and "Eyes Forward" Support with the 26 OWS
10	Disseminate Urgent (UUA) Pilot Reports (PIREPS)
11	Prepare and Disseminate Mission Weather Products (MWPs)
12	Disseminate Routine (UA) PIREPS Locally and Longline
13	Provide MWP Briefing Support
14	Provide Other Weather Products, Information, and Briefings
15	Accomplish Weather Function Training
16	Accomplish Administrative Tasks

1.5. Assumption of Duties. During significant outages and evacuation of the 26 OWS facilities, responsibility for the AAFB TAF, WWAs and transient flight briefings will transfer to the 97 OSS/OSW until back-up support is assumed by another Characterization Unit (CU).

1.6. Alternate Operating Location (AOL)/Continuity of Operations Procedures (COOP). The WF maintains an AOL to continually provide/support weather requirements when the primary duty location (weather station) is evacuated; however, the mission essential WF personnel will NOT evacuate during exercises and will be available to provide continued support under such conditions. Should conditions warrant the WF's evacuation of the primary duty location, the 26 OWS will assume all responsibilities for mission weather support briefings until such time the WF can reestablish support capabilities.

1.6.1. Location. The designated AOL is the 2nd Floor Conference/Training room within the Air Traffic Control (ATC) Tower (Building 525). To gain access to the ATC Tower, WF personnel will allow ATC personnel to scan/input Common Access Card (CAC) information into the Stanley Cipher Lock operating system. This access does not include access to the control tower room on the top floor. WF personnel will be removed from the cipher lock operating system for permanent change of station orders and deployments/Temporary Duty Assignments (TDYs) over 60 days.

1.6.2. Communications. The AOL is equipped with Local Area Network (LAN) communications that mirror the primary WF duty location. HOT KEYS on the telephone located at the AOL provide immediate connectivity to the ATC Tower, Radar Approach and Control (RAPCON), Supervisor of Flying (SOF), 97 AMW Command Post (CP), and 26 OWS. All WF contact numbers are identical to primary WF location. Additionally, sufficient communication capabilities and references are available for maintaining the ability to communicate with other supported units. Computer LAN connectivity is also readily available.

1.6.3. AOL Operations/COOP. In the event of an evacuation, support limitations will be highly dependent upon the operational status of LAN communications, the Joint Environmental Toolkit (JET) (the WF's primary means of disseminating weather information), and/or the AN/FMQ-19 (the primary Automated Meteorological Observing System (AMOS)).

1.6.3.1. The first priority is for the weather technician to take and disseminate augmented weather observations, assuming JET and AN/FMQ-19 systems are still operational and accessible, within 15 minutes of arriving at the AOL and during redeployment to the primary operating location IAW AFMAN 15-111, *Surface Weather Observations*.

1.6.3.2. If the AN/FMQ-19 sensors or JET system is not operating, or there is no communication interface available to augment the observation, WF personnel will use the Kestrel 4500 and other back-up meteorological equipment or techniques to prepare observations. Additionally, all wind and pressure data will be estimated. The WF will contact ATC Tower, RAPCON, and 26 OWS with the most current observation data as it becomes available.

1.6.3.3. Mission services will revert to the 26 OWS until the WF is able to re-establish mission services at the AOL. Once established, the mission weather technician will liaise with the 26 OWS, CP, SOF, and primary customers to resume mission services locally.

1.6.4. The following limitations to normal weather services can be expected in the event of WF evacuation from the primary duty location:

1.6.4.1. Briefing and/or forecasting services may be curtailed or temporarily suspended until additional manning can be recalled and work priorities allow. Aircrews can expect some briefing delays due to limited resources. They may be referred to the 26 OWS for briefing and planning support.

1.6.4.2. Planning briefs, staff briefs, maintenance briefs, and any other previously coordinated mission support services may not be capable of being supported from the AOL.

1.6.4.3. Use of tactical meteorological equipment and limited access to satellite imagery, lightning detection, and WSR-88D radar equipment will likely degrade the accuracy and timeliness of some forecasts and observations.

1.6.4.4. There is no direct PMSV capability for WF personnel. Prior to evacuating the weather station or immediately upon relocating to the AOL, the weather technician will contact the ATC tower and request they monitor the PMSV frequency (239.8 MHz) until the WF can return to the primary duty location. Weather personnel will request that ATC tower personnel pass PMSV contacts to WF personnel via phone patch.

1.6.4.5. Table 1.2. identifies the weather observing limitations from the AOL.

**Table 1.2. AOL Observing Limitations**

#	Limitation
1	The ATC tower AOL room has one small window facing the runway. Rapid changes in the weather (i.e., the start and stop of precipitation) may go unnoticed for a short time.
2	Buildings, parked aircraft and trees block portions of the sky as well as ground visibility reference markers, especially north through northeast.
3	There are few adequate ground visibility reference markers beyond 1 ½ miles. This especially degrades determination of nighttime visibility.

#### 1.7. Operating Assumptions.

1.7.1. The WF assumes adequate resources, communications, personnel, and facilities will be available to execute all AAFB weather support requirements.

1.7.2. The 26 OWS assumes adequate resources, communications, and facilities will be available to execute the identified requirements outlined on the 26 OWS-97 OSS/OSW Installation Data Page, and there will be sufficient weather information available on which to base weather operations and production.

1.8. Release of Weather Data to Non-Department of Defense (DOD) Agencies and Individuals. No weather data will be released to non-DOD agencies or personnel without the express approval of 97 AMW Public Affairs (97 AMW/PA) and/or 97 AMW Staff Judge Advocate (97 AMW/JA) legal offices.

1.9. Additional Weather Support. Direct all requests for additional weather support to WF leadership (Flight Commander and/or Flight Chief). WF leadership will arrange or direct

services IAW this instruction, Air Education and Training Command (AETC) directives, AFIs, AFMANs, and AFPDs.

## **2. Weather Flight Operations**

2.1. WF Responsibilities. The WF is the single point of contact for weather information at AAFB. It provides and/or arranges all strategic, operational, and tactical-level weather information for AAFB and its tenant units.

2.1.1. The WF Commander (WF/CC) and/or Flight Chief provides or arranges for all weather support and services to AAFB and its tenant units IAW AFI 15-128.

### **2.2. Hours of Operation.**

2.2.1. The WF will have personnel on duty when supported units are performing their primary operation, duty, or mission and/or when ATC is open and no automated observing system capability exists. The WF sustains 24-hour operations Monday through Friday (beginning 0030L Monday through the end of flying Friday). Additionally, WF personnel will be on duty as required on weekends and holidays to support mission requirements.

2.2.1.1. A WF technician will be on stand-by beginning at the end of flying Friday through 0029L the following Monday morning, and is charged to respond to WWAs issued by 26 OWS during weather station closure.

2.2.1.2. The WF is not required to be on duty when ATC is closed, unless Severe Weather Action Procedures (SWAP) have been implemented and it is necessary to provide the “eyes forward” function, or to supplement for tornadic activity. See paragraph 5.2.4.1 for further details.

2.2.1.3. WF leadership will notify the 26 OWS Operations Superintendent or Regional Flight Commander/NCOIC when temporary changes to duty hours occur (i.e., Family Day, Training Day, other closures/extensions). This notification will be made NLT 24 hours in advance of closure to allow the 26 OWS to reallocate resources, as required.

2.2.2. During hours of airfield closure, the 26 OWS will provide METWATCH, resource protection, and flight weather briefing services for AAFB. The WF maintains at least one weather technician on stand-by at all times to be recalled for duty while the airfield is closed.

2.2.3. When the WF closes, the weather technician transfers resource protection responsibilities and flight weather briefings (as applicable) to the 26 OWS and notifies the 97 AMW/CP. Upon returning to duty, the weather technician will call the above agencies to reclaim responsibility, to include gaining environmental situational awareness of current and forecast conditions, discussing any active/imminent resource protection products and receiving a handover of flight briefing responsibility from the 26 OWS.

2.2.4. In the event any of the following criteria is met at scheduled closure time, the WF will not close until the criteria is no longer a factor.

2.2.4.1. A watch or warning has been issued by the 26 OWS for severe weather as defined in Table 7.1.

2.2.4.2. AAFB airfield remains open for any other reason.

### 2.3. Stand-by Weather Technician Recall.

2.3.1. The WF maintains a weather technician on-call to respond to significant weather events after hours (normally weekends and holidays when no flying is otherwise scheduled). This technician is available to be recalled anytime the 26 OWS issues watches or warnings for severe weather as defined in Table 7.1 or WF leadership notifies him/her of a need (operational, meteorological, or as per 97 AMW/CP or 26 OWS) to reopen. Upon recall, the stand-by weather technician will report to the weather station and will notify the 26 OWS and the 97 AMW/CP upon arrival.

2.3.2. In the event any of the following criteria occur during airfield closure hours, the on-call weather technician will be recalled.

2.3.2.1. A watch or warning has been issued by the 26 OWS for severe weather as defined in Table 7.1.

2.3.2.2. Unscheduled airfield movements require the airfield to open for departures or arrivals.

2.3.2.3. AAFB airfield is required to open for any reason.

2.4. Meteorological Equipment. The WF uses a wide range of equipment to determine the current state of the atmosphere. These critical systems are used continuously to provide customers with the most timely, accurate and relevant weather intelligence possible. Below is the meteorological equipment installed and utilized by the WF

2.4.1. Gibson-Ridge Radar software. The WF is a principal member of the Unit Radar Committee for the NEXRAD Radar Product Generator (RPG) located in Norman, OK. The WF uses the Gibson-Ridge software, which displays graphic and alphanumeric data critical to the timely detection of severe weather (i.e., tornadoes, severe thunderstorms, and heavy precipitation). The radar and RPG are maintained by the 97 OSS/OSM. If Gibson-Ridge is inoperative, some backup radar data is available over the internet.

2.4.2. AN/FMQ-19 Automated Meteorological Observing System. The AN/FMQ-19 is an integrated system of multiple weather sensors and data automation components that continually measure environmental conditions to provide responsive, reliable, accurate, real-time weather data to all supported agencies. The AN/FMQ-19 measures airfield weather conditions to include, but not limited to wind direction, wind speed, present weather, runway visual range, visibility, cloud heights as well as coverage, temperature, dew point temperature, atmospheric pressure, and lightning detection. Refer to Attachment 7 for sensor locations.

### 2.5. Communications Equipment.

2.5.1. Joint Environmental Toolkit (JET) is the Air Force's primary weather communication and dissemination computer system. Air Force Weather (AFW) units utilize the JET hardware and web based software to transmit data to, and receive data from weather agencies worldwide via the internet.

2.5.1.1. The JET system consists of a dedicated collection sensor device, maintained by the 97th Communications Squadron (97 CS) IAW 24 AF-AF/A3OW-JET Project



Management Office (PMO) Memorandum of Agreement (MOA), along with hardware that allows for a connection to the AAFB Airfield Automation System (AFAS) or IDS-5 server located in the RAPCON facility. These servers, integrated through the LAN, provide weather information to both the ATC tower and RAPCON. Additionally, the 26 OWS has the capability to access the JET system in the absence of WF personnel.

2.5.1.2. The WF and 26 OWS use JET locally to disseminate observations, forecasts, and WWAs to the CP, ATC agencies, and the Maintenance Operations Control Center (MOC). If there are any JET system malfunctions, that office should immediately inform the WF for troubleshooting and repair. If the WF cannot resolve the outage they will refer the problem to the JET Help Desk at Air Force Weather Agency (AFWA), and will track the outage daily until the issue is resolved.

2.5.1.3. JET outages can range from partial to catastrophic impacts to AAFB operations. For JET back-up procedures, refer to paragraph 5.3 for observation dissemination; paragraph 5.4.3 for TAF dissemination; and paragraph 7.12 for WWA dissemination.

2.5.2. PMSV. The WF is assigned frequency 239.8 MHz for PMSV. See paragraph 4.6 for more information on PMSV.

2.5.3. Local Area Network (LAN). The LAN is a vital tool for the WF. Information available over the internet and intranet is used to acquire weather data to provide mission essential briefings and forecasts. In the event of LAN failure, all services are significantly degraded.

2.5.4. Telephone. The WF has several multi-line phones in the operations area, with many others nearby that can be used to relay information. Telephones in the operations area also have hotlines to the ATC Tower, RAPCON, SOF, CP, and AMOPS, and MOC.

2.6. The WF Web Page. Online WF products may be obtained through the 97 AMW SharePoint site <https://97amw.portal.altus.af.mil/sites/OG/oss/weather/default.aspx>. Products include, but are not limited to Altus AFB Climatology, 5-Day Forecast, and MWPs.

2.7. Facility Power. The WF offices have an independent back-up power generator in the event of a total electrical outage. The generator is maintained by the 97th Civil Engineer Squadron (CES), and 97 CES is the point of contact for associated power or any other Bldg. 185 issues.

## 2.8. WF Limitations.

### 2.8.1. AN/FMQ-19 Sensor Limitations.

2.8.1.1. The official point of observation is the active AN/FMQ-19 sensor. The sensor may not always represent conditions throughout the entire base or along runway approach tracks.

2.8.1.2. The AN/FMQ-19 lacks the capability to detect and report all specified airfield visibility minima criteria specified in Attachment 2. The system reports visibility in 1/4 statute mile (SM) increments up to 2 SM and the 1/2 SM increments up to 3 SM.

2.8.1.3. The following conditions may degrade the accuracy of the AN/FMQ-19 sensor readings.

2.8.1.3.1. The AAFB airfield complex is surrounded from the Northwest through South by open irrigated fields causing localized dense fog.

2.8.1.3.2. Grass surrounds all AN/FMQ-19 sensor sites.

2.8.1.3.3. The 35R sensors have a shallow ditch/creek of water that affects visibility/RVR sensors.

#### 2.8.2. Augmentation Limitations.

2.8.2.1. When weather technicians perform augmentation duties from the weather station, the official point of observation is located on the south side of Bldg 185 next to the back-up rain gauge. See paragraph 5.2.3 for additional augmentation limitations.

2.8.2.2. When augmenting from the AOL, the official point of observation is around the ATC Tower. Refer to Table 1.2 for AOL observing limitations.

2.8.3. The WF has coordinated a Cooperative Weather Watch with AAFB ATC and other appropriate base agencies and is reliant on weather data passed to construct representative weather reports. See paragraph 5.7 for details on the Cooperative Weather Watch.

2.8.4. Optimum forecast and observing support is dependent on fully operational communication and meteorological sensing equipment.

2.8.5. The AN/FMQ-19 lightning detection system is used to determine the approximate direction and distance of lightning strikes around the airfield complex. Equipment limitations and operational status would limit lightning detection.

2.8.6. Certain services, such as staff briefings and SOF training may not be available without prior coordination, due to manning levels or duty priorities.

### 3. Mission Information

3.1. General. The WF supports the 97 AMW and its tenant units. In this capacity, the WF is the single point of contact for weather information at AAFB. It provides and/or arranges all strategic, operational and tactical-level weather information for all units assigned to AAFB including two active duty flying units (the 54th Air Refueling Squadron (54 ARS) and the 58th Airlift Squadron (58 AS)) and one AFRC associate unit (the 730th Air Mobility Training Squadron (730 AMTS)).

3.1.1. The primary mission of the 97 AMW is “forging combat mobility forces and deploying Airman warriors.” This includes training pilots and enlisted aircrew of all experience levels and qualifying them for KC-135 and C-17 operations.

3.1.2. 54 ARS (KC-135). The 54 ARS flies over 1,600 sorties and 7,000 hours annually, providing specialized flight training to over 550 students. Common call signs are “OILER,” “TEXON,” and “NITRO.”

3.1.3. 58 AS (C-17). The 58 AS flies over 2,700 sorties and 12,000 hours annually, typically flying along tracks 312, 313, 400 and 197 and Altus Military Training Routes. Common call signs are “TRIBE,” “CADD0,” “NOGS,” and “TEXON.”

3.1.4. 730 AMTS (KC-135 and C-17). The 730 AMTS is an AFRC associate unit that flies 97 AMW-assigned aircraft. The 730 AMTS uses the 54 AS and 54 ARS call signs.

**Table 3.1. KC-135 Stratotanker General Characteristics.**

Characteristic	Description
Primary Function	Aerial Refueling and Airlift
Prime Contractor	Boeing Company
Speed	530 miles per hour at FL300
Range	1,500 miles w/ 150,000 pounds of transfer fuel / ferry mission, up to 11,015 miles
Crew	Three: Pilot, Co-Pilot, Boom Operator (Navigator-optional)

**Table 3.2. C-17 Globemaster General Characteristics**

Characteristic	Description
Primary Function	Cargo and Troop Transport
Prime Contractor	Boeing Company
Speed	450 knots at FL280 (.74 Mach)
Range	5,200 nautical miles (unfueled)
Crew	Three: Pilot, Co-Pilot, Loadmaster

3.2. Ground Operations and Weather Sensitivities. Per AFI 11-2C-17V3, *C-17 Operations Procedures*; AFI 11-2KC-135V3 *KC-135 Operations Procedures*; AFI 11-214, *Air Operations Rules and Procedures*; associated AETC supplements; and Air Force Occupational Safety and Health Standards (AFOSHSTD) directives, Attachment 8 provides guidance on weather sensitivities for the various personnel, training, and operations conducted at AAFB.

3.3. Area of Responsibility (AOR). The WF will prepare tailored products to meet the differing needs of all supported agencies. Flying units conduct the majority of their training in areas including, but are not limited to the local flying pattern, a variety of Military Training Routes and high-level routes throughout western Oklahoma, the Texas Panhandle, and northern Texas. Additionally, a variety of Air Refueling tracks are used throughout the central United States. Figures in Attachment 6 depict commonly used Air Refueling (AR) tracks, Military Training Routes, and drop zones.

3.4. Weapons Systems and Weather Sensitivities. Instructions, supplements, and Technical Orders provide the guidance on weather sensitivities for the various weapon systems and related programs. As per AFI 11-2C-17V3; AFI 11-2KC-135V3; AFI 11-214, *Air Operations Rules and Procedures*; and AFI 11-202V3 AETC SUP 1; 97 AMW assigned C-17s and KC-135s operate under the weather restrictions outlined in Attachment 8.

#### **4. Mission Services**

4.1. General. Mission services are administered by the WF in conjunction with the 26 OWS directly relating to the mission of the 97 AMW and its tenant units. This chapter explains

AAFB's mission weather support including METWATCH, MISSIONWATCH, Resource Protection, Disaster Support, Forecast Verification, Tactical Decision Aid Support, Mission Weather Products (MWP), and the respective dissemination processes.

4.1.1. Duty Hours. Mission services are provided Monday through Friday (beginning 0030L Monday through the end of flying Friday). Services are not normally provided on weekends, federal holidays, Wing training days or when the airfield is closed.

4.1.2. Meteorological Watch (METWATCH). The WF and 26 OWS conduct METWATCH to provide controlled and organized situational awareness of the current and future meteorological situation for AAFB. The WF serves in an "eyes forward" role to collaborate and advise with the 26 OWS on current conditions and how they may affect weather products. Upon detecting an un-forecast change, weather technicians will notify all supported units and begin the process to amend the forecast and/or Mission Weather Products (MWP).

4.1.3. MISSIONWATCH. The WF will monitor aerospace weather during specific missions focusing on mission-limiting meteorological impacts to ongoing military operations as described in Table 4.1.

**Table 4.1. Meteorological Watch Variations.**

Type of METWATCH	Missions Watched	Responsible Unit
Terminal	Operations on AAFB	26 OWS
Area	Operations within local flying area and flying training areas	WF
Route	Specific route operations designated by the SOF	WF
Flight	Specific flight or mission operations (upon request)	WF

4.2. Mission Weather Products (MWP). The WF produces a suite of MWPs to include the Mission Execution Forecast (MEF), flight weather briefings, MEF-1s, and DD Form 175-1s. See Attachment 10 for sample products, formats, delivery methods, and decoding information.

4.2.1. MEF. The primary MWP produced by the WF is the MEF. The MEF is developed using a constant two-tiered approach of both administrative and operational processes as outlined in AFMAN 15-129V2. During these processes, WF personnel create the MEF by fusing and tailoring products created by strategic and regional weather centers, as well as information supplied by local units and agencies. The end result is a product designed to provide timely, accurate and relevant weather information to customers. MEFs must be horizontally consistent with, but not necessarily mirror, products issued by the 26 OWS and AFWA. During rapidly changing conditions, the WF will amend the MEF to reflect accurate conditions and brief the customer and/or the SOF, then back-brief 26 OWS if crossing TAF categories IAW duty priorities. MEFs are developed daily to support the 97 AMW flying missions and are available at the forecast counter located in Bldg 185 or electronically on the WF SharePoint page. These briefings are typically prepared within three hours of designated briefing times supplying mission weather data for AAFB aircrews as indicated on daily flight schedules. The MEF will be amended for mission impacting criteria that are observed or later forecast to

decrease to less than, or if below, increase to equal or exceed any of the values outlined in Table A8.12.

4.2.2. AAFB Planning Weather. A generated product provided by the WF and is provided for mission planning and training and is NOT amended. This information is issued during swing shift for the forecast period of current day plus two flying days in the future.

4.2.2.1. Local Planning Weather. Weather data is in TAF format to include clouds, visibility, weather, winds, hazards and solar-lunar data. In addition, a two-hour breakdown of forecast maximum temperature, minimum altimeter, and pressure altitude is provided for two hour increments just prior to take-off for morning and evening missions.

4.2.2.2. Air Refueling Routes. General forecast conditions broken down by AR track identifying sky condition at flight level, forecast visibility, winds at several flight levels and whether turbulence, icing and/or thunderstorms are expected on the route. Temperature and temperature deviation are also produced.

4.2.2.3. Low Level Training Routes. General forecast conditions broken down by low level track identifying sky condition at flight level, forecast visibility, hazards on the tracks and whether turbulence, icing and/or thunderstorms are expected on the route.

4.2.2.4. Dropzones. Weather data is in TAF format to include clouds, visibility, weather, winds, and hazards. In addition, forecast winds/temperatures are provided for surface, flight levels 005, 010, 015, and 030.

4.2.3. Take off/Landing Planning Data (TOLD). Automatically generated each time the MEF is updated. This product is created for AAFB, Clinton Sherman, and Amarillo. Information is broken into 2-hour increments to indicate temperature, altimeter, pressure altitude and winds for all locations. Hard copies are available on the forecaster counter in the WF.

4.2.4. MEF-1. These off-station flight weather briefings are developed utilizing the WF MEF. They are available to the aircrew at the WF forecast counter located in Bldg 185 or may be electronically disseminated directly to the aircrew via e-mail or fax. The WF prepares these briefings upon request and/or 97 AMW missions that require an aircraft to remain over night at another airfield.

4.3. Flight Weather Briefings (FWBs). The WF will provide FWBs to all aircrew as duty priorities permit. Aircrews of non-scheduled flights and/or transient aircrews should request FWBs from the WF at least 2 hours prior to brief time. The WF will provide a MEF, DD 175-1 FWB, or verbal briefing to all aircrews, as duty priorities allow.

4.3.1. Non-Scheduled Flights. Aircrews should provide as much advanced notice as possible when requesting FWBs to allow WF personnel adequate time to analyze data, generate forecasts and develop MWPs. Place flight weather briefings on request by calling DSN 866-7522 or Commercial (580) 481-7522.

4.3.2. The 26 OWS will provide FWBs to support flights conducted outside of normal organization operations when ATC is closed and WF personnel are unavailable. FWBs

can be requested via phone at Commercial (318) 529-2651/2652/2653 or DSN 331-2651/2652/2653, by FAX (318) 529-2609 or DSN 331-2609 or via webpage <https://26ows.us.af.mil/> and selecting the “Jet- Request a Briefing” link on the right side of the webpage under “26 OWS Contact Information.” FWBs should be submitted with at least 2 hours lead time. Follow-up or clarification can be made either by phone or by selecting the “Flight Weather Briefer” email link at the bottom left of the 26 OWS webpage.

4.3.3. The WF technician will enter a FWB request via the 26 OWS webpage when the supported unit provides advanced notification of intent to conduct operations, and the WF is unable to provide MWP.

4.3.4. The WF will coordinate requests for briefing support with the 26 OWS on larger flying operations when the WF cannot provide MWPs to the supported unit(s) due to manning levels or temporary duty commitments.

4.3.5. Transient Aircrew Services. IAW AFMAN 15-129V2, transient aircrews requesting support from the WF will receive a briefing or update to an existing briefing form IAW duty priorities. In the event WF is unable to provide transient aircrew support, then the aircrew will be directed to the dedicated Airfield Operations-maintained web-based briefing terminal located in the flight planning room in Bldg 185 or access to a computer to self-brief or schedule a flight weather briefing from the 26 OWS. The WF leadership maintains a Transient Aircrew Weather Support binder located in the flight planning room. This provides detailed contact information and instructions on accessing/navigating the 26 OWS web site. The 26 OWS stands ready to brief any transient aircrew 24 hours-a-day and may also be reached Commercial (318) 529-2651/2652/2653 or DSN 331-2651/2652/2653; by FAX (318) 529-2609 or DSN 331-2609 or by requesting a FWB from the 26 OWS webpage (access <https://26ows.us.af.mil/> and select the “Jet - Request a Briefing” link on the right side of the webpage under “26 OWS Contact Information”). FWBs should be submitted with at least 2 hours lead time. If this is not available, please contact the WF.

4.3.5.1. Tanker Airlift Control Center (TACC) Integrated Flight Management (IFM) Briefings. The WF will update aircrews with take-off weather data and notify 618 AOC (TACC)/XOW if the update includes any of the criteria listed in Table 4.2. WF technicians will provide access to meteorological satellite imagery, radar imagery, and other perishable weather data to crews upon request IAW established duty priorities. The WF will consult/coordinate with 618 AOC (TACC)/XOW as required to resolve any aircrew concerns/issues with the mission weather package and will facilitate discussions between aircrew members and 618 AOC (TACC)/XOW to elaborate on weather impacts and/or answer aircrew questions. The 618 AOC (TACC)/XOW is the final arbiter for weather issues involving AMC sorties/missions.

**Table 4.2. IFM Standard Mission-Limiting Criteria**

Criteria
Ceiling/visibility less than or equal to 200ft/1/2sm (or other published airfield limitations)
Dry runway crosswind 25kts or greater
Wet runway crosswind 20kts or greater

Forecast low-level wind shear for KC-10 operations
Observed low-level wind shear for all AMC aircraft
Predominant thunderstorms on station
Freezing precipitation
Moderate (or greater severity) turbulence/icing
Forecast or observed volcanic ash on takeoff

4.3.5.2. Air Combat Command Air Operations Squadron (ACC AOS) Controlled Missions. If tasked to support launch, alternate, abort and destination bases for ACC AOS-controlled missions, the WF will brief aircrews using ACC AOS/AOSW Controlled Mission Weather products (CMWPs), coordinate deviations from CMWPs with ACC AOS/AOSW, and debrief arriving aircrews at destination bases and report any deviations from the CMWP (weather not as forecast) to ACC AOS/AOSW.

4.4. Forecast Amendments. Amendment criteria are defined as mission weather thresholds that will impact completion of a mission.

4.4.1. Required Amendments. The thresholds identified in Table A8.12 are considered to be required amendment criteria from 1 hour prior to takeoff times until the mission is complete. Amendments will be issued as soon as possible IAW duty priorities.

4.4.2. Representative Amendments. Forecasts may be amended at any other time the WF deems it to be unrepresentative of the current or forecast conditions at any location on the MEF.

4.5. Forecast Verification. The WF and 26 OWS conduct post-mission analysis of their forecasts to verify the operational effectiveness of their processes/procedures, which aids in identifying areas of needed improvement and the base-line for the metrics program.

4.5.1. Metrics Programs. Although the WF provides most of the verification data utilized by the 26 OWS, both units maintain separate metrics programs.

4.5.1.1. WF Metrics. Derived from real-time meteorological data, PIREPS, and aircrew feedbacks, the WF metrics program compiles the information provided into graphical form. Monthly metrics notifications will be sent to 97 OG Workflow, 54 ARS/DO, 58 AS/DO, Altus 730 AMTS Workflow and 97 OSS/DO via email and is uploaded to the AETC/A3OW SharePoint page and WF SharePoint page. The MEF will also be tailored to incorporate metrics.

4.5.1.2. 6 OWS Metrics. The 26 OWS verifies its TAF and watch/warning lead-times versus false-alarm rates. Each month the 26 OWS posts warning and watch metrics onto their web page [https://26ows.us.af.mil/Tech\\_Ref/metrics/index.cfm?UID=&BW=H&UF=M&AOR=1&USEHF=1](https://26ows.us.af.mil/Tech_Ref/metrics/index.cfm?UID=&BW=H&UF=M&AOR=1&USEHF=1) for WFs to review.

4.5.2. MWP Reviews. The WF will conduct MWP reviews to improve forecast capabilities and processes. These will be forwarded to AETC/A3OW and if warranted to the 26 OWS for inclusion in local training.

4.6. Pilot-to-Metro Service (PMSV). The WF provides weather observations and forecasts to aircrews, while in flight or on the taxiway, using the PMSV radio (239.8 MHz) or via

phone patch via the CP or ATC tower. By giving weather personnel PIREPs over the PMSV, aircrews enhance situational awareness to atmospheric conditions experienced in data-sparse areas.

4.6.1. When contacted by aircrew on the PMSV, the WF will provide timely, relevant and accurate weather data to include observations, forecasts, and/or WWAs.

4.6.2. During WF closures and extended outages, aircrews may obtain PMSV briefs from the 26 OWS via phone patch by dialing Commercial (318) 529-2651/2652/2653 or DSN 331-2651/2652/2653.

4.6.3. The WF will solicit a PIREP during each PMSV contact with aircrew, and will log it on the PMSV/Reliable Source Log. PIREPs are a tool for aircrews to help the WF better serve them and enhance flight safety.

4.6.4. Outages. The WF will notify ATC personnel of any PMSV outage and request assistance in monitoring frequency 239.8 MHz. Additionally, the WF will contact 97 OSS/OSAA AMOPS to annotate long term outages via Notice to Airmen (NOTAM) until repairs are complete. During WF PMSV outages, aircrews can contact the WF via phone patch at DSN 866-7522, Commercial (580) 481-7522, via the 97 AMW/CP at frequency 349.0 MHz and then phone patch to the WF; or via the ATC tower frequency 255.6 MHz and then phone patch to the WF. Once PMSV service is restored, the WF technician will notify the back-up agency that the WF assumes full PMSV support and AMOPS to cancel the NOTAM.

4.7. Space Weather. The WF provides space weather impacts on each MWP focusing on communications and navigation systems to include High Frequency (HF), Ultra High Frequency (UHF), and Global Positioning Systems (GPS).

4.7.1. Space weather products are produced and available directly from the Air Force Weather Web Service (AFW-WEBS) page via links from the WF SharePoint page or the 26 OWS web page. Sample space weather products and descriptions are found in Attachment 11.

4.7.2. The WF SharePoint page contains a link to the CONUS space weather products page. The WF will submit any reported space weather impacts through the AFW-WEBS. For more information about space weather products, please contact the WF.

4.7.3. Local Space Weather Criteria. The criteria listed in Tables 4.3-4.6 are used in the MEF, DD Form 175-1, and/or MEF-1 to determine space weather impacts to operations.

**Table 4.3. Local Space Weather Criteria (HF-Impacts).**

Criterion	No Impact	Marginal	High
Frequency (Block 15 on 175-1) <u>Global/Regional 6 Hr Forecast of Ionospheric Conditions Impacting HF Propagation.</u>	No color shading indicates no impact	HF Impacts to frequencies up to 20 MHz	Impacts to the entire HF spectrum (up to 30 MHz)
Products issued four times daily and available on AFW-WEBS. Identifies location where space weather conditions are expected to degrade HF communications and other HF applications.			



**Table 4.4. Local Space Weather Criteria (UHF-Impacts).**

Criterion	No Impact	Marginal	High
Frequency (Block 15 on 175-1) <u>Global/Regional 6 Hr Forecast of Ionospheric Conditions Impacting UHF Radio Propagation/UHF SATCOM/*UHF SATCOM Scintillation.</u>	No color shading indicates no impact  *Light or weak Impacts depicted green for 1-4 dB fade	UHF Impacts experiencing 4-10 dB fade	UHF Impacts > 10 dB fade
Products issued four times daily and available on AFW-WEBS. Identifies location where space weather conditions are expected to degrade UHF SATCOM.			

**Table 4.5. Local Space Weather Criteria (GPS-Impacts).**

CRITERION	No Impact	Marginal	High
GPS (Block 15 on 175-1) <u>Estimated GPS Single-Frequency GPS Error Map</u>	Colors in the 0 - 15 range	Colors in the 15 - 50 range	Colors in the 50 - 75 range
GPS maps are issued every hour on AFW-WEBS. Identifies estimates of current single-frequency GPS accuracy based on calculations that take into account ionospheric-induced errors. This product is not valid for Dual Frequency GPS receivers. White on this product (values greater than 75) indicates no usable GPS navigation expected.			

**Table 4.6. Local Space Weather Criteria (High-Altitude Radiation Dosage).**

Criterion	No Effects	Marginal	Severe
Radiation (Block 15 on 175-1) <u>High Altitude Radiation Dosage Charts</u>	0.0 – 9.9 mrem/hr	10.0 – 99.9 mrem/hr	100.0 or greater mrem/hr
Products/forecasts issued four times daily via AFW-WEBS based on cosmic radiation measurements. Quantifies the global level of radiation dosage at high altitudes based on background cosmic radiation. Followed up by faxed notification during high-energy particle events.			

4.7.4. Space Weather Product Dissemination. Space weather product information and dissemination is described in Table 4.7.

**Table 4.7. Space Weather Product Dissemination.**

Product Source	Disseminated By	Update Frequency
WF's link to AFW-WEBS Space Weather Web Site	2 WS	Instant
MEF/175-1/MEF-1	WF Technician	Upon Request

WF	WF Technician	Upon Request/As Needed
----	---------------	------------------------

4.8. Disaster Support. The WF provides support to the 97 AMW for disaster and contingency operations by:

4.8.1. Assisting the installation commander and Emergency Management (EM) personnel in thoroughly educating installation agencies on purpose, applicability and operating procedures related to the warning and watch system to include various severe weather threats to the local area.

4.8.2. Implementing Severe Weather Action Procedures (SWAP) as required.

4.8.3. Performing formal forecast reviews of severe weather events according to AFI 10-229, *Responding to Severe Weather Events*.

4.8.4. Providing actual experienced severe weather conditions validity of forecast at the time of occurrence to include any watches or warnings issued and operational status of meteorological equipment at the time of event to the CP in preparation of OPREP-3 reporting IAW AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*.

4.8.5. Conducting and documenting periodic severe weather refresher seminars for WF personnel.

4.8.6. Providing injects in the Installation Emergency Management Plan 10-2 (IEMP 10-2).

4.8.7. Providing representation to the 97 AMW Wing Inspection Team (WIT) and Crisis Action Team (CAT).

4.9. CBRNE Support. Air Force Weather forces serve as Weather SME to CBRN operations IAW roles and responsibilities outlined in AFI 15-128, AFI 10-2501, and AFMAN 10-2503, *Operations in a Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Environment*. The WF staff weather element supports CBRNE operations by:

4.9.1. Routinely meeting with AAFB EM, Fire Emergency Services (FES), and Base Environmental Element (BEE) to achieve appropriate mission immersion.

4.9.2. Getting familiar with the CBRN plume models utilized by these Emergency Support Function (ESFs), their tactical decision aid outputs, and uses in installation commanders' decision cycles.

4.9.3. Understanding the variety of possible weather input options within each model for each type of C, B, R, N and E event.

4.9.4. Recommending and providing the most appropriate weather data type for EM and other ESFs to use to run their chosen CBRNE model to assess a real-time event which has occurred at a specific location and time. The staff weather element's familiarity with EM's and other ESF's CBRNE models and associated weather input parameters/data types will help in determining the optimal weather data type for the chosen CBRNE model.

4.9.5. Providing a region-specific model data recommendation consistent with the 26 OWS model for use in transport models. Historical climatological data is not recommended except for training or long-term planning where “canned” scenarios are being used.

4.9.6. Making sure that weather technicians provide requested observations and forecasts that are representative of the location/time of the CBRNE event.

4.9.7. Working closely with EM or other ESF functions to ensure the supported commander gets a consistent picture.

4.9.8. Obtaining/providing Chemical Downwind Messages (CDMs)/Effective Downwind Messages (EDMs) from the 26 OWS for Emergency Management Function or any other agency upon request. CDMs and EDMs are available via the 26 OWS webpage accessible by the WF. In the event the information is not available, the WF retains the ability to calculate and construct CDM messages and will provide a wind forecast in lieu of the EDM.

#### 4.10. Tactical Decision Aid Support.

4.10.1. Tactical Decision Aids (TDAs) provide information concerning the expected performance levels of electro-optical precision-guided munitions and target acquisition systems based on target characteristics, environmental conditions, and possible munitions delivery tactics.

4.10.2. Target Acquisition Weapons System (TAWS). TAWS data to include light data (Sunrise, Sunset, Moonrise, Moonset, Beginning Morning Nautical Twilight, Ending Evening Nautical Twilight, Illumination, and Millilux values) target acquisition information, and night vision goggles data is available to all supported units upon request.

#### 4.11. Bioenvironmental Engineering Support/Information.

4.11.1. The WF provides weather notifications of extreme thermal conditions IAW AFPAM 48-151, *Thermal Injury* and AFI 11-418, *Operations Supervision*. This is accomplished principally through the determination and application of thermal indices (i.e., Index of Thermal Stress (ITS)) and the wind-chill index and associated caution and danger zones. Refer to AFPAM 48-151 Table A3.1 for ITS Reference Values and Table A4.1 for Wind Chill Index.

4.11.2. The WF does not measure Wet Bulb Globe Temperatures (WBGT) or compute index measurements. These measurements are completed by the BE.

### 5. Airfield Services

5.1. Airfield Services include those actions and areas that affect AAFB. Airfield Services include weather observing, resource protection (WWAs), and PMSV support. Observing services include providing “Eyes Forward” support to the 26 OWS. “Eyes Forward” support is defined as WF personnel relaying all significant, time-sensitive meteorological information to the 26 OWS.

5.2. Weather Observations. Observations will be taken and disseminated IAW AFMAN 15-111. The AN/FMQ-19 is the AF standard system for automated observations, with WF

technicians augmenting the system when required. While in automated mode, the AN/FMQ-19 continually senses and reports the following weather elements: wind, visibility, precipitation/obstructions to vision, cloud height, sky cover, temperature, dew point, altimeter (ALSTG), and lightning. Note: The FMQ-19 reports weather elements over a more limited area, concentrating on the approach end of the active runway. The AN/FMQ-19 takes readings every minute, and uses time averaging of elements for more consistent observations.

5.2.1. Types of Observations. There are three types of observations: Aviation Routine Weather Report (METAR), Special (SPECI) Observations, and Local (LOCAL) Observations. All observations are taken from the official observation point.

5.2.1.1. METAR (Routine Meteorological Observation Report). A METAR is a regularly scheduled observation taken and disseminated every hour at 55-59 minutes after the hour. A METAR observation may also include special weather criteria that were met during the given observing period. METAR observations are disseminated locally and longline.

5.2.1.2. SPECI (Special Observation). A SPECI is an unscheduled observation taken and disseminated when any special criteria in AFMAN 15-111 or local criteria listed in Attachment 2 has been observed. SPECI reports will be prepared and transmitted after the last relevant criteria is observed and will be disseminated locally and longline.

5.2.1.3. LOCAL (Local Observation). A LOCAL is an unscheduled observation, reported to the nearest minute during back-up of the AMOS pressure sensor. LOCAL altimeter setting observations are taken at an interval not to exceed 35 minutes when there has been a change of 0.01 inch Hg (0.3 hPa) or more since the last ALSTG value. A METAR or SPECI taken within the established time interval will meet this requirement. LOCALs are taken and disseminated to ATC agencies as soon as possible after the relevant altimeter setting change is observed.

5.2.2. Official Point of Observation. The official point of observation is the active AN/FMQ-19 sensor. When augmenting the AN/FMQ-19, the point of observation is located on the south side of Bldg 185 next to the back-up rain gauge. The cab in the weather station may be used by weather personnel to determine ceiling and visibility elements. When augmenting from the AOL, the official point of observation is around the ATC tower.

5.2.3. Backup Observation Site Limitations. The official point of observation located on the south side of Building 185 near the rain gauge does not allow a clear, unobstructed 360 degree view around the runway complex. The technician's view from southwest through north is obstructed by trees, buildings, and hangars. The obstructions interfere with accurate visibility measurements and may obscure features moving in from the stated directions. Aircraft engine noise may impede the forecaster's ability to hear thunder. High intensity lights located around the airfield complex and security lights on nearby buildings hinder the technician's ability to determine sky condition and visibility at night. For AOL observing limitations, refer to Table 1.2.

5.2.4. AN/FMQ-19 Operations. The WF will operate the AN/FMQ-19 in full automated mode to provide the official METAR and SPECI observations for AAFB, except when augmentation is required IAW AFMAN 15-111 and/or this publication.

5.2.4.1. Augmentation. Augmentation is the process of having position-qualified weather technicians manually add or edit data to observations generated by a properly sited AMOS such as the AN/FMQ-19. The two augmentation processes are supplementing and back-up.

5.2.4.1.1. Supplementing. Supplementing is a method of manually adding meteorological information to an automated observation that is beyond the capability of the AN/FMQ-19 to detect and/or report.

5.2.4.1.1.1. Technicians will perform a Basic Weather Watch (BWW) and be prepared to supplement observations when the airfield is open and the conditions in Table 5.1 are observed and/or are forecast to occur within 1 hour.

5.2.4.1.1.2. Technicians will be ready to perform a BWW and be prepared to supplement observations when the airfield is open and the visibility is less than 3 SM and/or is forecast to occur within 1 hour.

5.2.4.1.1.3. Technicians are required to log on to JET, place JET in augment mode, and be prepared to supplement whenever a watch or warning has been issued for tornadic activity.

5.2.4.1.1.4. Technicians will only supplement the automated weather observation during airfield closure hours when SWAP has been implemented and it is necessary to provide the eyes forward function or whenever a watch or warning has been issued for tornadic activity.

5.2.4.1.1.5. Technicians always take Operational Risk Management (ORM) into consideration when deciding whether or not to supplement observations. Safety of the technician always comes first and safety of flight and resource protection is paramount.

5.2.4.1.1.6. Immediate reporting of a tornado or funnel cloud takes precedence over other phenomena.

**Table 5.1. Mandatory Supplementary Weather Conditions.**

Weather Conditions
Tornado (+FC) / Funnel Cloud (FC) / Waterspout (+FC)
Hail (GR) (greater than or equal to 1/4" in diameter)
Volcanic Ash (VA)
Ice Pellets (IP)
Snow Depth (4/sss) (only during airfield operating hours and if heavy snow warning has been issued and snowfall is occurring)
Tower Visibility (in remarks as reported by Tower personnel and is different from prevailing visibility.)

5.2.4.1.2. Back-up. Back-up is the method of manually providing meteorological data and/or dissemination to an AN/FMQ-19 observation when the primary automated method is not operational or unavailable due to sensor and/or communication failure. Technicians use guidance in AFMAN 15-111, Para. 3.4 and Attachments 2 and 3 to determine which observation elements to back-up.

5.2.4.1.2.1. There is no requirement to back-up the system/sensor when the airfield is closed. However, the technician will back-up the system/sensor (as needed) when recalled to perform SWAP operations.

5.2.4.1.2.2. When an AN/FMQ-19 sensor is no longer working properly, the technician will ensure supported ATC agencies are notified of all outages prior to contacting any maintenance agency. Once notifications are made, technicians will make every attempt to report the outage and perform back-up on logged out sensor(s) until fixed. The technician will enter the corrected or missing element(s) in the METAR/SPECI.

5.2.4.1.2.3. Altimeter Updates. When backing up the AN/FMQ-19 pressure sensor, ALSTG update LOCALs will be taken at an interval not to exceed 35 minutes when there has been a change of 0.01 inch Hg (0.3 hPa) or more since the last reported ALSTG value. A METAR or SPECI taken within the established time interval meets this requirement. LOCALs are taken and disseminated to ATC agencies as soon as possible after the relevant altimeter setting change is observed.

5.2.4.2. The technician will maintain situational awareness of local weather conditions and the AN/FMQ-19 observations during airfield operating hours. Weather technicians will also monitor area observation and forecast products to keep abreast of changes expected to affect AAFB.

5.2.5. Weather Watch. The AN/FMQ-19 system performs a Continuous Weather Watch (CWW). When the FMQ-19 requires augmentation, WF personnel will conduct a BWW (see paragraph 5.6).

5.3. Back-up Dissemination Procedures. During JET or communications outages, the WF will disseminate weather observations locally to agencies shown in Table 5.2 (in order), and record dissemination on Local Dissemination Log. During extended outages when JET is down, the WF will send observations longline via the AFW-WEBS website. If the network is down or the webpage is not working, technicians will call another weather unit or the 26 OWS for assistance in transmitting products longline via AFW-WEBS. “Eyes-forward” support to the 26 OWS will also continue via telephone.

**Table 5.2. WF Voice Dissemination Listing.**

Order of Dissemination	Phone
ATC Tower	DSN 866-6833/Commercial (580) 481-6833
RAPCON	DSN 866-3378/Commercial (580) 481-3378
26 OWS	DSN 331-2617/Commercial (318) 529-2617

5.4. Terminal Aerodrome Forecasts (TAF).

5.4.1. AAFB TAFs are produced and disseminated by the 26 OWS. For TAF format, specification, and amendment criteria, see Attachment 4. TAFs are issued at the times outlined in this instruction.

5.4.2. TAFs are issued at the following times when the airfield is open and in conjunction with MEF production times: 0900 Zulu (Z) [(0400L Central Daylight Time (CDT)/0300L Central Standard Time (CST)]; 1700Z (1200L CDT/1100L CST); and 0100Z (1900L CDT/1800L CST).

5.4.3. The 26 OWS disseminates the TAF locally and longline utilizing JET; however, forecast information is available via the internet through various weather-related websites. Once the TAF has been disseminated, it is viewable by all JET users on AAFB. In the event of a 26 OWS JET malfunction, the 26 OWS will contact the WF, which will in-turn disseminate the TAF. In case of WF JET malfunction, the WF will disseminate via AFW-Webs or contact another OWS to transmit TAF. If the event is a widespread JET failure, the WF will contact 26 OWS, obtain the TAF, and email, fax, or phone to ATC agencies (Tower and RAPCON).

5.4.4. The WF will maintain and periodically exercise with 26 OWS, the ability to produce TAFs if for any reason the 26 OWS is incapable of providing this service.

5.4.5. TAF amendments are described in Attachment 4. Amendment criteria are based on airfield minima and conditions that meet WWA criteria.

5.4.6. The AAFB MEF is considered the official flight planning forecast for the 97 AMW.

5.5. Watches, Warnings, and Advisories. The 26 OWS and the WF perform resource protection for AAFB. Resource protection is detailed in Chapter 7.

5.6. Basic Weather Watch (BWW). A BWW will be conducted when the airfield is open and during periods when any of the mandatory augmentation of the AN/FMQ-19 is required. Due to these other weather duties, weather technicians on duty may not detect and report all weather changes as they occur. The BWW observing program has been implemented to establish the minimum requirements needed to ensure the proper level of weather watch is maintained. During a BWW, weather technicians will recheck weather conditions, at intervals not to exceed 20 minutes since the last observation/recheck, to determine the need for a SPECI observation, when any of the conditions listed in Tables 5.3-5.5 are observed to be occurring or are forecast to occur within 1 hour.

**Table 5.3. BWW Ceiling Criteria.** The ceiling forms or dissipates below, decreases to less than, or if below, increases to equal or exceed:

Criteria	Reference	Criteria	Reference
7,000 feet	Local--for Duke Beam	800 feet	AFMAN 15-111; AAFBI 13-204V3; DOD FLIP
5,000 feet	AFI 11-2C-17V3	700 feet	AFMAN 15-111
3,000 feet	AFMAN 15-111; AFI 11-2KC-135V3	600 feet	AFMAN 15-111; DOD FLIP; AFI 11-2C-17V3
2,500 feet	AAFBI 13-204V3	500 feet	DOD FLIP; AFMAN 15-111

2,000 feet	AAFBI 13-204V3; AFI 11-202V3; AFMAN 15-111	400 feet	DOD FLIP
1,500 feet	AAFBI 13-204V3; AFMAN 15-111	300 feet	AFI 11-2KC-135V3; AFI 11-2C-17V3
1,000 feet	AFMAN 15-111; AFI 11-2KC-135V3	200 feet	AFMAN 15-111; DOD FLIP; AFI 11-2C-17V3

**Table 5.4. BWW Visibility Criteria.** Surface visibility as reported in the body of the report decreases to less than or, if below, increases to equal or exceed:

Criteria	Reference	Criteria	Reference
3 miles (4800 meters)	AFMAN 15-111; AAFBI 13-204V3; DOD FLIP	1 1/8 miles (1800 meters)	DOD FLIP
2 3/4 miles (4400 meters)	DOD FLIP	1 mile (1600 meters)	AFMAN 15-111; DOD FLIP
2 1/2 miles (4000 meters)	DOD FLIP	7/8 mile (1400 meters)	DOD FLIP
2 miles (3200 meters)	AAFBI 13-204V3; AFMAN 15-111; DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3	3/4 mile (1200 meters)	DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3
1 1/2 miles (2400 meters)	DOD FLIP	5/8 mile (1000 meters)	DOD FLIP
1 3/8 miles (2200 meters)	DOD FLIP	1/2 mile (0800 meters)	DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3, AAFBI 13-204V3
1 1/4 miles (2000 meters)	DOD FLIP	1/4 mile (0400 meters)	AFMAN 15-111

**Table 5.5. BWW Additional Criteria.**

Criteria	Reference
Precipitation (any form)	AFMAN 15-111
Thunderstorms	AFMAN 15-111
Fog or Mist	AFMAN 15-111
Any other significant meteorological feature	AFMAN 15-111
Mandatory Supplementary Weather Elements defined in Table 5.1 of this publication	AFMAN 15-111
During mandatory Back-up of the AN/FMQ-19	AFMAN 15-111

5.7. Cooperative Weather Watch. The WF will maintain a Cooperative Weather Watch program with ATC personnel, SOF, 97th Security Forces Squadron (SFS), and Flying Squadrons. Of primary concern is the report of tower visibility different from the prevailing



surface visibility, local PIREPS and any occurrence of previously unreported weather conditions that could affect flight safety or be critical to the safety or efficiency of other local operations and resources.

5.7.1. A WF technician will:

5.7.1.1. Provide training and certify ATC personnel as limited weather observers. Training, at a minimum will include:

5.7.1.1.1. Evaluating and reporting tower visibility to the WF when tower visibility is less than 4 Statute Miles (SM) and is different from surface prevailing visibility.

5.7.1.1.2. PMSV procedures.

5.7.1.1.3. Decoding surface weather observations and forecasts.

5.7.1.2. Provide WF orientation for the ATC personnel and SOF upon request.

5.7.1.3. Evaluate weather information provided by ATC personnel to determine that AN/FMQ-19 data is accurate. If AN/FMQ-19 data is determined to be erroneous, ATC agencies will be notified first and then it will be logged out IAW back-up procedures outlined in paragraph 5.2.4.1.2.

5.7.1.4. Evaluate information received from aircraft in the local pattern for possible inclusion into MEF, surface observations, and/or PIREPS.

5.7.1.5. Relay all PIREPS to the 26 OWS.

5.7.2. ATC personnel and SOF, as applicable, will:

5.7.2.1. Review the cooperative weather watch training seminar. Once complete, they will complete a written exam. A certified 7-level (or higher) weather technician will grade the test and conduct a review of any missed questions with the trainee. A minimum score of 90% is required for passing. After passing the written exam, ATC personnel certification is documented in the individual's training record.

5.7.2.2. Notify the WF when tower visibility is less than 4 SM and is different from prevailing surface visibility.

5.7.2.3. When duties permit, notify the WF when lightning is first observed, thunder is heard, obscuring phenomenon (i.e., fog, haze, smoke), precipitation is first observed/stops, or ceiling/sky cover appears to rise, lower, or dissipate to a degree that would result in a change to the airfield status (i.e., Instrument Flight Rules (IFR)/Visual Flight Rules (VFR)).

5.7.2.4. Relay PIREPS to WF personnel for dissemination and possible incorporation into local weather products (observations, MWP) no later than 5 minutes after receipt.

5.7.2.5. Notify the WF of any active runway changes.

5.7.2.6. Report changes in the high intensity runway light (HIRL) setting to the weather technician. This ensures the RVR, based on the HIRL setting of 3, 4 or 5 is representative of existing RVR.

5.7.2.7. Aid the WF in verifying conditions resource protection WWAs.

5.7.2.8. Notify the WF of any observed Tornado or funnel cloud.

5.7.2.9. Any other significant meteorological condition.

5.7.3. 9 SFS personnel will relay any hazardous weather reports or sightings (tornado, funnel cloud, hail, freezing precipitation (rain freezing on impact and/or forms a glaze on the ground or other surfaces) etc.) to WF personnel. Unofficial reports of severe weather from credible sources within 15 miles will be appended in the remarks of the observation and disseminated longline and locally during augmentation of the AN/FMQ-19.

5.7.4. Flying Squadron personnel will relay PIREPS to the WF either directly or through telephone, PMSV, ATC Tower, or RAPCON.

5.8. Meteorological Watch (METWATCH). The term METWATCH is used to provide an organized approach for weather personnel to maintain situational awareness of both current and future meteorological situations with the primary focus on un-forecasted changes in the weather. The 26 OWS will perform a continuous METWATCH for AAFB, with the WF providing “eyes forward” support as defined by AFMAN 15-129V1 and 2. Changes in the status of weather elements result in notifications disseminated from the WF or 26 OWS to base agencies.

5.8.1. The METWATCH process encompasses WWA criteria (Tables 7.1-7.2) and SPECI observation criteria (Attachment 2).

5.8.2. The WF will relay significant, time-sensitive meteorological information not found in coded meteorological reports to the 26 OWS to assist in characterization operations.

5.8.3. The WF will alert the 26 OWS to developing situations not coded in meteorological reports that potentially drive amendments to forecast products from the 26 OWS or impact flight safety.

## **6. Staff Weather Services**

6.1. General. The senior weather officer serves as the WF/CC and staff weather officer for the 97 AMW and its commanders. The WF/CC provides weather and space-environment expertise to various committees, advisory groups, and the 97 AMW/CC’s Senior Staff to ensure comprehensive consideration of natural environment effects on base operations. When needed, WF/CC duties may be delegated to other qualified weather personnel. The WF/CC creates and redefines staff weather services as needed to add maximum value to AAFB operations. Staff weather services are normally provided Monday through Friday from 0730-1630L and will be provided outside of these normal hours with prior coordination from 97 AMW leadership (i.e. tropical weather support, short-notice humanitarian relief taskings, etc.). Sample staff weather products described below are available on the WF SharePoint webpage by selecting the “Sample Weather Products” link on the left-side of the webpage and in Attachment 9.

6.2. Staff Weather Brief. The WF provides the 97 AMW Commanders and Staff with the current weather synopsis and planning forecast. The briefing format changes to effectively describe weather impacts on the mission of the day and to incorporate technological advancements.

6.3. Crisis Action Team (CAT) Staff Brief. During CAT activations, the WF/CC or designated WF representative will provide detailed weather information as it impacts all facets related to the activation to include any briefs to the Emergency Operations Center (EOC) leadership. Slide presentations are prepared as time permits. In the event the preparing of slides is not feasible, the WF/CC will verbally provide weather information.

6.4. Deployment/Concept Briefings. During mobility concept briefs and/or deployment briefs, the WF/CC will provide mobilizing personnel with the current weather picture and planning forecast for AAFB and deployment locations, as well as climatic data for deployment locations upon request.

6.5. 5-Day Forecast. The WF will produce a daily 5-Day forecast for AAFB with the predominant conditions expected for the next five days. Forecast weather parameters include sky condition, precipitation type and high and low temperatures and potential limiting conditions to the mission.

6.6. Tropical Weather Support. The WF will provide tropical updates using the most current Tropical Cyclone Threat Analysis Product (TC-TAP) produced by the 26 OWS derived from the National Hurricane Center when projected landfall is forecast to impact any Air Force Base or a Category 3 or higher hurricane has potential to impact a “major” city (i.e., New Orleans, Houston, etc.). Wing leadership will be briefed at the Maintenance (Mx) briefing when needed and no deviations from NHC/26 OWS will be made. Supported agencies should also understand that 48-hour and 72-hour outlooks (or longer if issued) contain a high degree of uncertainty, are for planning purposes only, and are subject to change.

6.7. Climatology Support. The WF leverages the support of the 14th Weather Squadron Strategic Climatic Information Service for climate statistics all over the world. Units requiring climate information should contact the WF/CC or Flight Chief for mission specific climatological information.

6.8. Special Occasion Briefs. When requested, the WF has the capability to provide current weather synopsis and/or planning forecast for air shows, change of command ceremonies, or other official events.

6.9. Flight Information Publication (FLIP) Weather Updates. The WF is responsible for ensuring all AAFB weather information in the FLIP is accurate, to include Radar Instrument Approach Minimums, local NOTAMs, and changes in airfield minima affecting SPECI/LOCAL criteria, PMSV contact information, 26 OWS contact information, and airfield services hours. All weather related updates will be requested through AMOPS. Information will be updated as soon as a change is confirmed, and the FLIP information will be checked for accuracy as soon as published.

6.10. Weather Training. The 97th Civil Engineer Squadron’s Emergency Management Flight provides weather-safety training during the Newcomer’s in-briefing, the annual Severe Weather briefing, and the annual Winter Safety briefing; however, the WF/CC or designated representative provides the following training to base personnel whose jobs depend on proper weather interpretation:

6.10.1. Instrument Refresher Course (IRC). A 30-minute weather-safety brief provided upon request via the WF’s SharePoint page or a forecaster provided briefing to pilots during the IRC. Describes aviation-weather hazards and explains how to avoid those

hazards. Additionally, the briefing reviews local climatology and how to gain the most out of available military weather services.

6.10.2. Local Weather Orientation. Provides the SOF, ATC Tower, and RAPCON personnel with the weather information they need to conduct their duties and participate in the AAFB Cooperative Weather Watch described in paragraph 5.7. The WF/CC or Flight Chief also offers this orientation to any other unit on base that needs a better understanding of weather to accomplish their mission. Personnel requiring local weather orientation should schedule an appointment with the Flight Chief at least 24 hours in advance.

#### 6.11. Weather Plans.

6.11.1. Local/base plans/annexes. The WF/CC (or designated representative) will attempt to document weather support in existing parent/host unit plans and directives (i.e., IEMP 10-2) and any other applicable plans containing an Annex H or weather appendix IAW AFI 15-128.

6.11.2. 26 OWS-97 OSS/OSW Installation Data Page (IDP). WF leadership (WF/CC and Flight Chief) will review the IDP hosted on the 26 OWS webpage within 90 days of assignment or annually, whichever occurs first, to ensure consistency with supported unit requirements. WF leadership will inform the 26 OWS of any changes that occur at AAFB to update the IDP.

### 7. Resource Protection

7.1. General. This section details actions undertaken by the WF and 26 OWS to provide resource protection to AAFB through the use of weather watches, warnings, and advisories.

7.2. Delineation of Duties. The 26 OWS is responsible for issuing all forecast watches and warnings for AAFB. The WF provides “eyes forward” for the 26 OWS and is responsible for issuing all observed warnings and advisories. In the event of imminent threat to life and property requiring an urgent dissemination, the WF will issue warnings normally issued by 26 OWS. In these cases, the WF will inform 26 OWS as time permits.

7.2.1. Expanded “Eyes Forward.” Expanded “eyes forward” support will be provided whenever Severe Weather Action Plan (SWAP) is in place. “Eyes forward” support to the 26 OWS will focus on the specific severe weather event which initiated SWAP.

7.2.2. WF personnel will utilize the Cooperative Weather Watch to aid in augmentation of the AN/FMQ-19 and perform enhanced METWATCH procedures as applicable prior to and during the onset of severe weather.

7.3. Unit Requirements. Units are responsible for coordinating additional WWA support.

7.3.1. Customers requesting support must validate the requirement by providing the WF with a list of protective actions taken each time the WWA is received.

7.3.2. If the request falls within the operational capabilities of the WF and/or 26 OWS, then weather personnel will monitor and advise of such significant weather formations.

7.4. Weather Watches. Weather Watches provide special notice to AAFB units alerting them to the potential for weather conditions to pose a hazard to life or property within 5 NM of the base. A weather watch can be thought of as a “heads up” that base agencies and

personnel need to consider making plans to take appropriate protective actions should an actual weather warning be issued at a later time. A complete list of AAFB Weather Watches and their desired lead-times can be found in Table 7.1. Rules for issuing, amending, extending, and canceling weather watches can be found in Table 7.3. See Attachment 5 for watch format.

7.5. Forecast Weather Warnings. A Weather Warning alerts units to an imminent or in-progress weather event within 5 NM of the base that poses a hazard to life and/or property. When warnings are issued, all personnel should take protective actions immediately. A complete list of AAFB Weather Warnings and their desired lead-times can be found in Table 7.1. Rules for issuing, amending, extending, and canceling weather warnings can be found in Table 7.3. See Attachment 5 for example warning format.

7.6. Observed Weather Warning. An Observed Weather Warning will be issued for lightning. An observed warning will only be issued when the condition occurs within 5 NM of the base. Rules for issuing, amending, extending, and canceling observed weather warnings can be found in Table 7.3. See Attachment 5 for sample warning format.

**Table 7.1. AAFB Weather Watches and Warnings.**

Weather Phenomena	Watch Lead Time	Warning Lead Time
Tornadic Activity (See paragraph 7.7.3) †±	1 Hour	15 Minutes( <del>5 Minutes</del> Base Siren Activation)
Severe Thunderstorm (Damaging Winds $\geq$ 50 knots and/or Damaging Hail $\geq$ 3/4") †±	4 Hours	30 Minutes
Moderate Thunderstorm (High Winds $\geq$ 35 but < 50 knots and/or Large Hail $\geq$ 1/4" but < 3/4")	N/A	1 Hour
Damaging Winds $\geq$ 50 knots (not associated with thunderstorms) ±	4 Hours	1 Hour
Strong Winds $\geq$ 35 but < 50 knots (not associated with thunderstorms)	N/A	30 Minutes *
Lightning w/in 5 NM (See paragraph 7.8)	30 Minutes	Observed
Freezing Precipitation (any intensity)±	3 Hours	1 Hour
Blizzard (See paragraph 7.9)±	2 Hours	1 Hour
Heavy Rain $\geq$ 2" within 12 hours	4 Hours	2 Hours *
Heavy Snow $\geq$ 1/2" within 12 hours ±	4 Hours	2 Hours *
The 26 OWS will not issue a watch or warning for sand storms or dust storms, or watches for strong winds or moderate thunderstorms.		
* AAFB leadership in cooperation and support of the operational risk management of units within the 97 AMW have elected to tailor the desired lead times of warnings in Table 7.1 (annotated with an asterisk) from the standard desired lead times prescribed in AFMAN 15-129V1, Table 4.1.		

† The WF will issue a severe thunderstorm ~~watch and/or~~ warning message via the cable audio override message for tornados, ~~damaging winds  $\geq 65$  mph, and/or hail  $\geq 1\frac{1}{2}$ " in diameter.~~ The 97 AMW/CP will issue these same messages via the weather alert radios, ATHOC and/or Giant Voice IAW local procedures.

± The WF will initiate then Severe Weather Action Plan (SWAP) whenever a watch or warning is issued for these criteria (see paragraph 7.13 for additional information on SWAP).

7.7. Tornadic Activity. A localized and violently destructive windstorm occurring over land characterized by a funnel-shaped cloud extending toward the ground. Tornadic activity is a blanket term that includes tornadoes, funnel clouds, and/or waterspouts.

7.7.1. Tornado Warning. A tornado warning will be issued by the 26 OWS and/or the WF when a tornado has been detected by WSR-88D Radar or visually observed and is anticipated to impact AAFB within 15 minutes. (Conditions for issuance of this warning are derived based on tornado characteristics, location observed, and speed of movement. Based upon the case-by-case characteristics of these factors, earlier warning may be provided).

7.7.2. Tornado Warning Dissemination. When the criteria meets the conditions for issuance of a tornado warning, dissemination will occur via ATHOC, AAFB Alert Radios, ~~and Giant Voice~~ and base siren through the 97 AMW/CP, Secondary Crash Net (SCN) through 97 OSS/OSAA, and the Base Cable Audio Override system through the WF.

7.7.3. Base Siren Activation. The Base Siren system will be sounded by the CP when the threat of an existing tornado or disastrous wind event is determined to be an imminent threat to impact AAFB within 15 minutes.

7.8. Lightning within 5 NM. The 26 OWS will issue a lightning watch when thunderstorm potential exists within 5NM of AAFB within the next 30 minutes. The WF will issue an observed lightning warning when conditions are observed within 5NM of AAFB.

7.9. Blizzard. A Blizzard is defined as: Duration of  $\geq 3$  hours, sustained winds or gusts  $\geq 30$  knots, considerable falling and/or blowing snow, with surface visibility  $\leq 1/4$  mile/0400 meters (all criteria must be met).

7.10. Observed Weather Advisories. Observed Weather Advisories provide special notice to AAFB units notifying them that non-severe weather conditions, which could affect operations, are occurring within 5NM of the base. An observed weather advisory is issued on the first occurrence of the designated criteria. Rules for issuing, amending, extending, and canceling weather advisories can be found in Table 7.3. A complete list of AAFB Observed Weather Advisories can be found in Table 7.2. Example advisory format is found in Attachment 5.

**Table 7.2. Observed Weather Advisories.**

Advisory Criterion	Thresholds
Surface Winds *	$\geq 20$ but $< 35$ kts
Crosswinds	$\geq 25$ kts
Crosswinds	$\geq 20$ kts but $< 25$ kts
Crosswinds	$\geq 15$ kts but $< 20$ kts

Crosswinds	$\geq 30$ kts
Low-level Wind Shear (Speed or Direction)	below 2,000 ft AGL within 5NM
Ceiling/Visibility	$\leq 200$ ft AGL/1/2 SM
Atmospheric Turbulence	Moderate or Greater SFC to 10,000 ft AGL
Atmospheric Icing	Moderate or Greater SFC to 10,000 ft AGL
Thermal Stress Caution	90°F - 99°F (32°C - 37°C)
Thermal Stress Danger	$\geq 100^\circ\text{F}$ (38°C)
Wind Chill Caution *	$\leq 32^\circ\text{F}$ (0°C)
Wind Chill Danger *	$\leq -20^\circ\text{F}$ (-29°C)

**Table 7.3. Rules for Issuing, Amending, Extending, and Canceling WWAs**

Rule #	Rules for Issuing WWAs
1	A Watch is not a substitute for a Warning. Units will issue Warnings, as required, regardless of whether or not a Watch had previously been issued.
2	All Watches and Warnings are issued for specific and distinct locations. - The area affected by a Watch or Warning will be clearly indicated in the text of the Watch/Warning. Warnings will be issued for a 5NM radius of AAFB.
3	The lightning watch and the observed lightning warning are separate entities and do not supersede previously issued Watches or WWs for other criteria
4	A separate valid time will be specified for each criterion when warranted. - All times used in a Watch or Warning will be expressed in Coordinated Universal Time (UTC) and Local Time. - Exception: A valid time is not used in observed warnings or advisories. In place of valid time, the following statement is used: <i>"Valid until further notice."</i>
5	A forecast WWA for a single unforecasted event that is not expected to persist or recur will not be issued. This will be accounted for as a miss.
6	The 26 OWS will issue observed warnings when the WF is not on duty or if the WF is unable to issue, as capability exists. Observed advisories that affect airfield operations (annotated with an asterisk in Table 7.2) will be issued by the 26 OWS when the WF is not on duty or if the WF is unable to issue, as capability exists.
7	More than one advisory may be in effect at the same time for the same location, but only one will be in effect for a particular phenomenon at the same time.
8	Under rare circumstances the WF may, without prior coordination, issue Warnings to facilitate resource protection actions when sufficient time does not exist to communicate a change in weather with the 26 OWS. The WF will forward pertinent information to the 26 OWS to ensure the warning is entered into JET.
9	The WF will issue observed WWAs to include lightning warnings while on duty.
Rule #	Rules for Amending, Extending, and Canceling WWAs
1	When a Warning or advisory no longer adequately describes the phenomenon's expected occurrence, a completely new warning or advisory with a new number will be issued.
2	WWAs may be extended provided the extension is issued prior to the expiration of the

	original notice.
3	How the amended or extended WWA affects any previously issued notice will be stated.
4	WWAs issued for previously forecast/observed conditions which are no longer occurring and are not expected to recur, will be canceled.
5	Lightning Watches are canceled only when the potential for lightning within the next 30 minutes is no longer forecast. Lightning Watches will not be canceled if there is potential for another thunderstorm within 30 minutes.
6	Observed Lightning Warnings will be canceled when thunderstorms have dissipated or passed beyond 5 NM of AAFB and lightning is no longer occurring within 5NM of AAFB. For lightning warning cancellations, a statement indicating its effect on any previously issued warnings, such as "WEATHER WARNING #XX-XXX remains in effect" or "WEATHER WATCH #XX-XXX FOR LIGHTNING REMAINS IN EFFECT." will be included. Note: The WF (or 26 OWS when the WF is off duty) will cancel the lightning warning.

#### 7.11. Special Weather Message Statements.

7.11.1. ICEMAN. A phone message will be transferred to the SOF and OSS/DO when airframe frost or freezing precipitation is expected to occur.

7.11.1.1. The WF technician will contact the SOF on duty in the ATC tower and the OSS/DO via phone NLT 1500 the day prior to expected frost. The SOF and OSS/DO will use the forecast to determine whether de-icing equipment is needed to be in-place and ready to de-ice in order to avoid costly delays or mission cancellations.

7.11.1.2. The WF technician will contact the SOF on duty in the ATC tower and the OSS/DO via phone immediately after the weather watch or warning for freezing precipitation is issued by the 26 OWS. The SOF and OSS/DO will use the forecast to determine whether de-icing equipment is needed to be in-place and ready to de-ice in order to avoid costly delays or mission cancellations.

7.11.2. SNOWMAN. A phone message will be transferred to the OSS/DO whenever snow accumulation greater than 1/2" is expected to occur at AAFB. The WF technician will contact the OSS/DO via phone immediately after the weather watch or warning for heavy snow is issued by the 26 OWS.

7.11.3. 26 OWS Special Weather Statements (SWS). The 26 OWS will issue SWS products to notify military decision makers of widespread severe weather events affecting military installations serviced by the OWS. SWSs will be routinely updated as conditions warrant. A SWS is a stand-alone product normally issued 48-72 hours in advance of the forecast event. SWS will be an alphanumeric product describing the type, onset, duration, and area impacted by the event and will be disseminated via common user communications. SWS may also include graphical depiction of the forecast event. The 26 OWS disseminates SWSs to WF personnel for evaluation and possible further dissemination/integration into the 97 AMW's risk management decision cycle.

7.12. Dissemination. Dissemination of WWAs, extensions, and cancellations are done via the Integrated Weather Warnings Capability (IWWC) in JET. In the event a WWA does not reach the intended agency, the WF and/or 26 OWS is responsible for notifying agencies listed in



Table 7.4 as identified in the supported agency data page. See Attachment 5 for more information on dissemination.

**Table 7.4. WWA Receipt Agencies.**

Agency	Contact Information
97 AMW/CP	DSN 866-6313/6314; Commercial (580) 481-6313/6314
ATC Tower	DSN 866-5505/6833; Commercial (580) 481-5505/6833
RAPCON	DSN 866-6582/6408; Commercial (580) 481-6582/6408
AMOPS	DSN 866-6200/6491; Commercial (580) 481-6200/6491
MOC	DSN 866-6211/6381; Commercial (580) 481-6211/6381

7.13. Severe Weather Action Plan (SWAP). IAW AFMAN 15-129V2, the WF has established procedures ensuring sufficient personnel are available to respond and address necessary preventive, protective actions required during potential/actual severe weather events or during meteorological/operational events to safeguard resources 24-hours a day, 7 days-a-week. The purpose of SWAP is to provide a means for the WF to systematically and collectively manage the additional strain and decision making processes that accompany severe weather. SWAP is a cooperative effort between the 26 OWS and the WF in which each agency has specific roles and responsibilities as defined by AFMAN 15-129V1 and 2.

7.14. Severe Weather Action Team (SWAT). SWAT encompasses a primary and alternate technician as the “Stand-by” person subject to recall during WF downtime as prescribed by Table 7.1.

7.14.1. “Stand-by” Technician. This individual serves as the designated SWAT leader until the WF/CC or Flight Chief is recalled. During WF downtime, the 26 OWS will notify the stand-by weather technician via stand-by phone when a severe weather watch or warning will be issued for the installation. If the stand-by forecaster cannot be reached, the 26 OWS will call CP with watch or warning information who will contact WF leadership. The stand-by weather technician returns to the weather station to initiate a local METWATCH during the valid period of each watch or warning.

7.14.2. Recall Procedures. When recalled, the stand-by weather technician makes contact with 26 OWS and 97 AMW/CP immediately upon opening the weather station.

7.14.2.1. The stand-by weather technician notifies and/or recalls the WF/CC and/or Flight Chief for assistance with the METWATCH when a watch or warning is issued as listed in Table 7.1 (appended with a  $\pm$ ).

7.14.2.2. Notification will not occur earlier than 4-hours prior to the forecast impact of the severe weather event.

7.14.2.3. If the stand-by weather technician cannot be reached by the 97 AMW/CP, the CP will contact the WF/CC, Flight Chief, or Element NCOICs IAW Local Policy.

7.14.3. At a minimum, the WF and 26 OWS will conduct and document an annual exercise of coordinated SWAP. An actual severe weather event meets the intent of an exercise.

7.15. Operational Reports (OPREP). IAW AFMAN 15-129V2, AFI 10-206, *Operational Reporting*, (including the AETCSUP), and AFI 10-229, when the 97 AMW/CP initiates the

process of reporting the impact of significant weather to higher headquarters, the WF will provide the following to the 97 AMW/CP, 97 OSS/CC, 26 OWS/CC, 26 OWS/DO, 26 OWS Regional Flight Leadership, and AETC/A3OW:

7.15.1. Actual weather experienced that was forecast valid at the time of occurrence.

7.15.2. Forecasts valid at the time of occurrence to include TAF and any watches and/or warnings issued (to include actual and desired lead time).

7.15.3. Operational status of meteorological equipment at time of event.

7.15.4. Any damage called into or observed by WF personnel.

7.16. Hurricane/Tropical Storm Notifications. Hurricanes and tropical storms do not strike AAFB; however, low cloud ceilings, thunderstorms, tornadoes and heavy precipitation associated with tropical systems can occur. The hurricane season begins on 1 June and ends 30 November annually.

7.16.1. The WF monitors the National Hurricane Center (NHC) forecasts and advisories as well as 26 OWS products (i.e., Tropical Cyclone Threat Assessment Product (TC-TAP). NHC forecast bulletins are published at 03, 09, 15, and 21Z and followed in-turn by 26 OWS updates.

7.16.2. The WF maintains the capability of updating 97 AMW leadership to NHC hurricane bulletins as referenced in paragraph 6.6. The WF does not deviate from the NHC or 26 OWS tropical weather products.

## **8. Reciprocal Support**

8.1. General. The WF requires daily support in order to accomplish its mission. This chapter outlines the support required by other agencies on AAFB. Per AFMAN 15-129V2, support to the WF by other local agencies is mandated by AF or other directives that may not be included in this chapter.

8.2. 97 AMW/CC. The 97 AMW/CC will chair a review of installation severe weather preparedness, capabilities, requirements and procedures at least annually per AFI 10-229.

8.3. 97 AMW/CP. The 97 AMW/CP will:

8.3.1. Provide the WF a courtesy copy of all OPREP-3s submitted for weather-related incidents or phenomena (i.e., aircraft diversion, aircraft damage, injuries, flight control problems or significant impact to student training) IAW AFI 10-206 and AETC Supplement.

8.3.2. Relay time-critical WWAs via ATHOC (Reference Attachment 5). The 97 AMW/CP will also utilize additional methods of notification including base siren, giant voice, AAFB alert radios, and telephones IAW local checklists.

8.3.3. Upon receipt of a Tornado Watch, immediately notify the installation commander.

8.3.4. Upon receipt of a Tornado Warning, immediately activate the base siren if the WF is closed, then notify the installation commander.

8.3.4.1. If the WF is open, the WF will request 97 AMW/CP personnel to activate the siren.

- 8.3.4.2. When the siren is activated, it will run for a three minute cycle and will not allow giant voice verbal over-ride.
- 8.3.5. Upon receipt of severe weather reports from on or off-base agencies, immediately notify and relay the information to the weather technician.
- 8.3.6. Assist the stand-by weather technician via communications with 26 OWS IAW the LOA between 97 OSS/OSW and 97 AMW/CP.
- 8.3.7. Provide copies of Quick Reaction Checklists (QRCs) to the WF/CC and/or Flight Chief in order to validate WWA notification procedures.
- 8.3.8. Provide back-up PMSV services to the WF IAW paragraph 4.6.4.
- 8.4. 97 AMW/PA. The 97 AMW/PA will:
  - 8.4.1. Disseminate general weather information via “481-NEWS” (481-6397) during duty hours.
  - 8.4.2. Assist the WF with photography requests for taking/recertifying surface visibility markers.
  - 8.4.3. In the event a tornado warning has been canceled and upon notification from the installation commander, post the “all clear” message to the Commander’s Access Channel.
- 8.5. 97 AMW/SE. The 97 AMW/SE will:
  - 8.5.1. Provide aircraft mishap board training for selected weather personnel.
  - 8.5.2. Notify the WF when it is suspected that weather may have caused or contributed to aircraft damage, either in-flight or on the ground.
- 8.6. 97 OG. The 97 OG will:
  - 8.6.1. Inform the WF of any changes in the operational needs of the 97 AMW, including changes in circling or landing minima.
  - 8.6.2. Provide the WF with all plans, messages or communications affecting weather support to 97 AMW.
  - 8.6.3. Through the SOF, notify the weather technician of the primary alternate airfield and any changes in alternates. As required, notify the 97 OG/CC and SUPs when alerted by the WF of a change in radar operational status. Notify the weather technician when a weather recall is initiated and pass PIREPs containing weather information as it impacts flight operations.
  - 8.6.4. Through 97 OG/OGV, provide the WF with the date, time and location of the quarterly SOF meeting. Sufficient notification is required for any requested presentations.
- 8.7. 54 ARS, 58 AS, and 730 AMTS. The commander and/or operations officer of the 54 ARS, 58 AS, and 730 AMTS will:
  - 8.7.1. Ensure aircrews pass weather-related PIREPs to the WF either directly via the PMSV or through the SOF.

8.7.2. Ensure flight crews make every effort to provide at least 2 hours advanced notification prior to the pick-up/briefing time for unscheduled MEF, MEF-1, and/or DD Form 175-1 requests.

8.7.3. Ensure a reasonable and timely effort is made to notify the WF of flight cancellations and/or mission changes affecting a previously scheduled or requested briefing.

8.7.4. Coordinate with WF leadership to establish and maintain a process to provide timely mission weather debrief information to the WF. Data is required for WF and AETC weather metrics and is a valuable part of the MEF improvement process ensuring the WF is providing accurate and appropriate weather support services for the flying mission.

8.7.5. In the event the Base Operations facility is evacuated, coordinate with WF leadership to arrange mass weather briefings within respective flying squadrons. The WF evacuation facility does not provide sufficient space to conduct routine flight weather briefings.

8.7.6. Notify the WF of anticipated significant increases or changes in the aircrew briefing workload.

8.7.7. Notify the WF when a mass briefing of at least four aircrews is desired for cross-country, out-and-back missions or other mass crew briefings. Notification will include the briefing location, desired brief time and the following elements: Departure and destination location(s), desired alternate(s) and times, take-off and destination arrival times, flight level(s) and specific routes. Notification must be made to the WF prior to close of business the duty day prior to the desired briefing. Units with facilities and digital projectors are asked to make these available to the WF briefer. If such equipment is not available, or an alternate briefing tool is available (overhead projector), please notify the WF at the time briefing is requested. Priority for multiple squadron briefings will be weighed against first come-first serve, considering planned departure times.

8.7.8. Ensure SOFs, SUPs, IPs and students are informed of and understand weather services and duty priorities. Questions or concerns should be directed to the WF leadership.

8.7.9. Notify the WF of any degradation in weather service or if changes to this plan are required.

8.7.10. Provide points-of-contact for coordination of weather liaison program.

8.8. 97 OSS/OSAT. The 97 OSS/OSAT (ATC Tower) will:

8.8.1. Evaluate tower visibility to report changes in the tower prevailing visibility to the WF when the tower visibility is less than 4 SM (6000 meters) and different from the surface prevailing visibility.

8.8.2. When duties permit, ATC personnel will notify the WF when lightning is first observed, thunder is heard, obscuring phenomenon (i.e. fog, haze, smoke), precipitation is first observed/stops, or ceiling/sky cover appears to rise, lower, or dissipate to a degree that would result in a change to the airfield status (i.e., IFR/VFR).

8.8.3. Relay pilot reports (PIREPS) to WF personnel for dissemination and possible incorporation into local weather products (observations, MEF) within 5 minutes of receipt.

8.8.4. Notify the WF of any active runway changes.

8.8.5. Report changes in the high intensity runway light (HIRL) setting to the weather technician. This ensures the RVR, based on the HIRL setting of 3, 4 or 5 is representative of existing RVR.

8.8.6. Aid the WF in verifying conditions outlined in WWAs.

8.8.7. Ensure weather personnel receive ATC Tower and RAPCON indoctrination. ATC Tower will be the focal point.

8.8.8. Notify the WF of any JET and wind sensor equipment problems.

8.8.9. Provide routine and non-routine PMSV radio checks. Provide back-up PMSV support IAW paragraph 4.6.4.

8.8.10. Coordinate and ensure all ATC Tower personnel receive local weather phenomena training and certification to take limited weather observations and to participate in the Cooperative Weather Watch.

8.8.11. Provide WF personnel access to the ATC control tower to perform back-up operations from the AOL.

8.9. 97 OSS/OSAR. The 97 OSS/OSAR (RAPCON) will:

8.9.1. Relay all PIREPs containing weather information to the WF weather technician within 5 minutes of receipt.

8.9.2. In conjunction with normal daily phone checks, obtain a voice clarity check on the RAPCON-to-Weather hotline.

8.9.3. Coordinate and ensure all RAPCON personnel receive weather code familiarization training.

8.9.4. Notify the WF of any JET and wind sensor equipment problems.

8.10. 97 OSS/OSAA. The 97 OSS/OSAA (AMOPS) will:

8.10.1. Notify the WF of aircraft mishaps and emergencies.

8.10.2. Provide RSC/RCR reading data to the WF for situational awareness purposes. RSC/RCR will not be reported in an observation.

8.10.3. Relay pertinent information on AAFB-diverted aircraft to weather personnel.

8.10.4. Provide WF with requested DOD FLIPs. Upon receipt of weather data changes for the DOD FLIPs, coordinate and submit all revisions for publication.

8.10.5. Provide a copy of any changes to standard airfield hours immediately upon notification by flight scheduling or 97 OG.

8.10.6. Notify the weather technician of the airfield closing time or any changes to that time.

8.10.7. Include a note for extended PMSV outages (over 24-hours) in local NOTAM when notified by WF personnel.

8.10.8. Include a note in for weather support closures and equipment/communications outages in local NOTAM. Provide the same for extended airfield hours indicating weather support availability.

8.10.9. Escort newly assigned WF personnel on a visual acuity tour of the airfield and identify locations of meteorological sensors and equipment.

8.11. 97 OSS/OSO. The 97 OSS/OSO (Current Operations) will:

8.11.1. Ensure WF leadership is notified of scheduled weekend/holiday flying and changes to the routine scheduled flying hours. This facilitates manpower scheduling and the lead time required to prepare the appropriate MWPs for flight operations.

8.12. 97 SFS. The 97 SFS will promptly inform the WF of any hazardous weather reported by SFS personnel or outside indigenous sources IAW with the Cooperative Weather Watch described in paragraph 5.7.3.

8.13. 97 CS. The 97th Communications Squadron (CS) will:

8.13.1. Notify the responsible service agents for outages.

8.13.2. Coordinate with off-base agencies to repair off-base lines (as applicable).

8.13.3. Perform necessary follow-up actions as required until full service is restored.

8.13.4. Ensure weather data and telephone circuits are assigned repair priorities.

8.14. 97 OSS/OSM. The 97 OSS ATCALS Flight will:

8.14.1. Ensure established maintenance response times are met IAW the 97 OSS-97 CS-97 CES Air Traffic Control and Landing Systems (ATCALS) Memorandum of Understanding (MOU).

8.14.2. Immediately notify the WF of any problems encountered in maintaining any piece of meteorological radar equipment.

8.14.3. Provide inputs to 97 AMW/CP for OPREP-3 report when the WSR-88D Weather Radar has been operationally unavailable for 24 or more consecutive hours.

8.14.4. Provide, coordinate, or arrange for the installation, maintenance, and repair of all weather communication and meteorological sensing equipment, except for the communication and meteorological equipment that is maintained by contract.

8.14.5. Ensure a 24-hour POC for reporting outages and assigning Job Control numbers is available.

8.14.6. Ensure scheduled maintenance does not degrade the MISSIONWATCH performed by the WF during periods of inclement weather and notify the WF technician prior to routine maintenance. NOTE: When OSM technicians perform periodic maintenance of the AN/FMQ-19 precipitation gauge, they are required to inject water into the tipping bucket. Because the sensor is an analog sensor, and even though it is disabled, the sensor memory remembers the injected amount of water and reports it when the sensor is re-enabled. The algorithms process this data and then report it into the daily

and monthly summary messages. The weather technician must ask how much water was injected, annotate the amount, and later backup (edit) appropriately and remove the amount from the daily precipitation readings. Even though the issue of analog sensor and reporting may be corrected in the future, if sensors are not carefully managed during maintenance, errors can occur. ATCALS technicians must ensure WF is notified promptly that the precipitation gauge is undergoing maintenance.

8.14.7. Maintain and update all Technical Orders and will advise operators of any significant changes, as received.

8.15. 97 CS/SCOSC. 97 CS/SCOSC (Communications Focal Point) will:

8.15.1. Upon notification by WF personnel, react to network outages/problems. WF personnel will provide mission impact statements when not having network access degrades mission support capability. The WF Airfield Services Element NCOIC (or representative) determines the operational impact of network outages and consults with communications personnel. WF personnel will contact Communications Focal Point at DSN 866-7000 for assistance.

8.15.2. Provide 24-hour internet access.

8.15.3. Ensure dissemination procedures are in place so meteorological products originating from 26 OWS and/or the WF are routed through the JET server. Network access and communications links are required for JET to function. The server for the system resides within the 97 CS NCC and the 26 OWS and WF are provided with remote access. 97 CS will allow access for TCNOs/updates or perform the install of TCNO/updates IAW 24 AF-AF/A3OW-JET PMO MOA. Contact AFWA Customer Service (Fielded Systems) at DSN: 271-2586, Option 2 for JET equipment issues.

8.15.4. SharePoint is a critical tool for weather dissemination of MWPs to 97 AMW agencies. 97 CS ensures network connectivity and server upkeep. All site related issues should be addressed to the site owner (97 OG/CSA).

8.16. All Weather Support Recipients:

8.16.1. With JET connectivity will notify the WF of problems with JET.

8.16.2. Must notify the WF through the formal chain of command when new weather support requirements are identified.

8.16.3. Must coordinate changes or additions to this weather support document as soon as such changes are anticipated.

WILLIAM A. SPANGENTHAL, Colonel, USAF  
Commander, 97th Air Mobility Wing

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

JP 3-59, *Meteorological and Oceanographic Operations*, 24 Sep 2008

AFDD 3-59, *Weather Operations*, 3 May 2006

AFI 10-206, *Operational Reporting*, 6 Sep 2011

AFI 10-206, AETC Supplement 1, *Operational Reporting*, 13 Jul 2009

AFI 10-229, *Responding to Severe Weather Events*, 15 Oct 2003

AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, 24 Jan 2007

AFI 11-2C-17V3, *C-17 Operations Procedures*, 16 Nov 2011

AFI 11-2KC-135V3, *C/KC-135 Operations Procedures*, 16 Sep 2008

AFI 11-202V3, *General Flight Rules*, 22 Oct 2010

AFI 11-202V3, AETC Supplement I, *General Flight Rules*, 19 Nov 2010

AFMAN 11-210, *Instrument Refresher Program (IRP)*, 3 Feb 2005

AFI 11-230, *Instrument Procedures*, 30 Mar 2010

AFPAM 11-238, *Aircrew Quick Reference Guide to the METAR and TAF Codes*, 17 Mar 2011

AFI 11-418, *Operations Supervision*, 15 Sep 2011

AFI 11-418, AETC Supplement I, *Operations Supervision*, 28 Mar 2012

AFI 13-204V3, AAFB Supplement, *Airfield Operations Procedures and Programs*, 10 Jan 2012

AFSPCPAM 15-2, *Space Environmental Impacts on DOD Operations*, 10 Oct 2003

AFMAN 15-111, *Surface Weather Observations*, 27 Feb 2013

AFI 15-114, *Functional Resource and Weather Technical Performance Evaluation*, 7 Dec 2001

AFI 15-127, *Air Force Weather Qualification Training*, 14 Mar 2012

AFI 15-128, *Air Force Weather Roles and Responsibilities*, 7 Feb 2011

AFMAN 15-124, *Meteorological Codes*, 28 Feb 2013

AFMAN 15-129V1, *Air and Space Weather Operations-Characterization*, 6 Dec 2011

AFMAN 15-129V2, *Air and Space Weather Operations-Exploitation*, 7 Dec 2011

AFPD 15-1, *Air Force Weather Operations*, 19 Feb 2010

AFVA 15-136, *Air Force Operational Weather Squadron Areas of Responsibility-CONUS*, 4 Jun 2008

AFVA 15-137, *Air Force Operational Weather Squadron Areas of Responsibility*, 4 Jun 2008

AFMAN 33-363, *Management of Records*, 1 Mar 2008



AFI 36-2201, *Air Force Training Program*, 15 Sep 2010

AFI 90-201, *The Air Force Inspection Program*, 23 Mar 2012

AFI 90-201, AETC Supplement I, *Inspector General Activities*, 28 Jun 2010

AFI 90-201, AAFB Supplement, *Inspector General Activities*, 26 Oct 2011

97 OSS/OSW-26 OWS Installation Data Page

97 OSS-97 CS-97 CES ATCALs MOU

### ***Prescribed Forms***

None

### ***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*

### ***Abbreviations and Acronyms***

**AETC**—Air Education and Training Command

**AETC/A3OW**—AETC Weather Branch

**AF**—Air Force

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFOSHSTD**—Air Force Occupational Safety and Health Standards

**AFPD**—Air Force Policy Directive

**AFRC**—Air Force Reserve Command

**AFWA**—Air Force Weather Agency

**AFW—WEBS**—Air Force Weather Web Enterprise System

**AGL**—Above Ground Level

**AIREP**—AIREP

**AMOS**—Automated Meteorological Observation System

**AMTS**—Air Mobility Training Squadron

**AMW**—Air Mobility Wing

**AOL**—Alternate Operating Location

**AOR**—Area of Responsibility

**ARS**—Air Refueling Squadron

**AS**—Airlift Squadron

**ATC**—Air Traffic Control

**ATCALs**—Air Traffic Control and Landing Systems

**BKN**—Broken  
**BWW**—Basic Weather Watch  
**CAT**—Crisis Action Team  
**CDM**—Chemical Downwind Message  
**CDT**—Central Daylight time  
**CES**—Civil Engineer Squadron  
**CONUS**—Continental United States  
**CP**—Command Post  
**CS**—Communications Squadron  
**CST**—Central Standard Time  
**CWW**—Continuous Weather Watch  
**DOD**—Department of Defense  
**DSN**—Defense Switched Network  
**DTG**—Date Time Group  
**EDM**—Effective Downwind Message  
**EET**—Exercise and Evaluation Team  
**EOC**—Emergency Operation Center  
**ESF**—Emergency Support Function  
**ETA**—Estimated Time of Arrival  
**EWO**—Emergency War Order  
**FLIP**—Flight Information Publication  
**FPCON**—Force Protection Condition  
**HF**—High Frequency  
**HIRL**—High Intensity Runway Light  
**IFM**—In-Flight Management  
**IRC**—Instrument Refresher Course  
**ITS**—Index of Thermal Stress  
**IWWC**—Integrated Weather Warning Capability  
**JET**—Joint Environmental Toolkit  
**KLTS**—4-letter ICAO identifier for AAFB  
**LANV**—Local Area Network  
**LLWS**—Low Level Wind Shear

**MEF**—Mission Execution Forecast  
**META**—Routine Meteorological Observation Report  
**METWATCH**—Meteorological Watch  
**MISSIONWATCH**—Mission Watch  
**MPH**—Miles Per Hour  
**MWP**—Mission Weather Product  
**NEXRAD**—Next Generation Radar  
**NHC**—National Hurricane Center  
**NM**—Nautical Miles  
**NOTAM**—Notice to Airmen  
**NVG**—Night Vision Goggles  
**NWS**—National Weather Service  
**OPR**—Office of Primary Responsibility  
**OPS**—Operations  
**OPREP**—Operational Reports  
**OPUP**—Open Principal User Processor  
**OSS**—Operations Support Squadron  
**OSW**—Weather Flight  
**OVC**—Overcast  
**OWA**—Observed Weather Advisory  
**OWS**—Operational Weather Squadron  
**PIREP**—Pilot Report  
**PMSV**—Pilot-to-Metro Service  
**RAPCON**—Radar Approach Control  
**RCR**—Runway Condition Report  
**RPG**—Radar Product Generator  
**RSC**—Runway Surface Condition  
**RVR**—Runway Visual Range  
**RVRNO**—Runway Visual Range Not Available  
**SCN**—Secondary Crash Net  
**SCT**—Scattered  
**SFS**—Security Forces Squadron

**SM**—Statute Mile

**SOF**—Supervisor of Flying

**SPECI**—Special Observation

**SWAP**—Severe Weather Action Procedures

**SWAT**—Severe Weather Action Team

**TACC**—Tanker Airlift Control Center

**TAF**—Terminal Aerodrome Forecast

**TAWS**—Target Acquisition Weapons Software

**TDA**—Tactical Decision Aid

**TEMPO**—Temporary

**UA**—Routine PIREP

**UFN**—Until Further Notice

**UHF**—Ultra-High Frequency

**URC**—Unit Radar Committee

**UTC**—Coordinated Universal Time

**UA**—Routine PIREP

**UUA**—Urgent PIREP

**VFR**—Visual Flight Rules

**WF**—Weather Flight

**WWA**—Watch, Warning, Advisory

**Z**—Zulu, also see UTC

### ***Terms***

**Air Force Weather Agency (AFWA)**—A strategic weather center at Offutt AFB NE, providing atmospheric data and analysis/forecast products required by the regional OWSs and the WFs worldwide. AFWA provides the centralized repository for global observations and forecasts that are data based at AFWA and, in turn, disseminated to DOD weather data users worldwide. In addition to global observations and forecasts collected from worldwide sources, AFWA collects meteorological satellite data from multiple sources. Based on global analysis of available data, AFWA creates global analysis and forecast products to meet the forecast requirements of its supported users.

**Alternate Operating Location**—The location to which the WF will move in the event that Bldg 185 is evacuated.

**Basic Weather Watch**—A method of observing, recording, and disseminating significant changes in weather conditions to essential customers.

**Cooperative Weather Watch**—A method of collective observing shared by the weather observer, tower personnel, and SOF, to enhance the mission of BWW. The weather observer collates information from other sources and disseminates as needed.

**Desired Lead Time (DLT)**—The total amount of time required to disseminate a forecast WWA from the 26 OWS through the local dissemination tree to all affected end-users plus the amount of advance notice a supported organization requires to complete mandatory protective actions before the onset of a particular weather phenomenon.

**Flight Information Publication**—Booklet containing aircraft approach, landing, and takeoff guidance at various airfields, to include AAFB. Also lists weather restrictions on airfields.

**Installation Data Page**—A document defining the specific environmental support requirements, technical data, reference material, and contact information for each organization receiving TAF and WWA support from the 26 OWS.

**Instrument Refresher Course**—Continuation training for aircrews. The WF provides instructors and material for the weather segment of the course upon request.

**Issue Time**—The time when an agency is notified of a WWA. When more than one agency is notified, the issue time is the time the last agency is notified. Follow-up notifications are not considered when determining issue time.

**METAR**—A regular observation, taken and disseminated locally and longline.

Meteorological Watch. A deliberate process for monitoring the terrestrial weather or space environment in an area or region. The purpose of a METWATCH is to identify when and where observed conditions significantly diverge from forecast conditions and determine courses of action to update or amend a forecast product or group of products and notify designated agencies.

**Mission Execution Forecast**—A mission execution forecast is how flight weather information is passed to the flying customer. It can take the form of a verbal briefing, a 175-1 briefing, a weather flimsy, or other forms.

**Mission Weather Product**—Any weather product or group of weather products generated by the WF that is integrated into the military decision making process. MWP's may be planning or execution products and are not limited to aviation missions.

**MISSIONWATCH**—A deliberate process of monitoring terrestrial weather or the space environment for specific mission-limiting environmental factors that may adversely impact missions in execution. The MISSIONWATCH process is performed by the WF and is intended to identify previously unidentified environmental threats and alert decision-makers at the operational unit and/or airborne mission commanders, enabling dynamic changes to mission profiles that may mitigate the environmental threat and optimize the chance of mission success.

**Operational Weather Squadron**—A regional forecast and weather watch center. Commonly referred to as a “hub,” AAFB’s servicing OWS is the 26 OWS located at Barksdale AFB, Louisiana.

**Severe Thunderstorm**—A thunderstorm presenting a threat to lives or property that requires agencies to enhance resource protection measures. Generally, thunderstorms producing hail greater than or equal to 3/4 inch diameter and/or surface wind greater than or equal to 50 knots.

**Terminal Aerodrome Forecast**—A coded weather bulletin providing forecast information for an aerodrome complex to facilitate flight planning and command and control. TAFs are formatted IAW AFMAN 15-124, Meteorological Codes, and amended IAW AFMAN 15-129V1, Air and Space Weather Operations-Characterization.

## Attachment 2

## SPECIAL OBSERVATION CRITERIA

**A2.1. SPECI observations.** SPECI observations will be taken and disseminated IAW AFMAN 15-111, and DoD Flight Information Publications (FLIP). A SPECI observation will be for the following conditions.

**A2.2. Ceiling.** The ceiling forms or dissipates below, decreases to less than, or if below, increases to equal or exceed the Table A2.1 values.

Table A2.1. SPECI Ceiling Criteria.

Criteria	Reference
7,000 feet	Local--for Duke Beam
5,000 feet	AFI 11-2C-17V3
3,000 feet	AFMAN 15-111; AFI 11-2KC-135V3
2,500 feet	AAFBI 13-204V3
2,000 feet	AAFBI 13-204V3; AFI 11-202V3; AFMAN 15-111
1,500 feet	AAFBI 13-204V3; AFMAN 15-111
1,000 feet	AFMAN 15-111; AFI 11-2KC-135V3
800 feet	AFMAN 15-111; AAFBI 13-204V3; DOD FLIP
700 feet	AFMAN 15-111
600 feet	AFMAN 15-111; DOD FLIP; AFI 11-2C-17V3
500 feet	DOD FLIP; AFMAN 15-111
400 feet	DOD FLIP
300 feet	AFI 11-2KC-135V3; AFI 11-2C-17V3
200 feet	AFMAN 15-111; DOD FLIP; AFI 11-2C-17V3

**A2.3. SPECI Sky Condition Criteria.** A layer of clouds or obscuring phenomena aloft is observed below the highest published instrument landing minimum (including circling) applicable to the airfield and no layer aloft was reported below this height in the previous METAR or SPECI.

Table A2.2. SPECI Sky Condition Criteria.

Criteria	Reference
800 feet	AFMAN 15-111; DOD FLIP

**A2.4. Visibility.** The surface visibility as reported in the body of the report decreases to less than or if below, increases to equal or exceed the Table A2.3 criteria.

Table A2.3. SPECI Visibility Criteria.

Criteria	Reference	Criteria	Reference
3 miles (4800 meters)	AFMAN 15-111; AAFBI 13-204V3; DOD FLIP	1 1/8 miles (1800 meters)	DOD FLIP
2 3/4 miles	DOD FLIP	1 mile (1600)	AFMAN 15-111; DOD FLIP

(4400 meters)		meters)	
2 1/2 miles (4000 meters)	DOD FLIP	7/8 mile (1400 meters)	DOD FLIP
2 miles (3200 meters)	AAFBI 13-204V3; AFMAN 15-111; DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3	3/4 mile (1200 meters)	DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3
1 1/2 miles (2400 meters)	DOD FLIP	5/8 mile (1000 meters)	DOD FLIP
1 3/8 miles (2200 meters)	DOD FLIP	1/2 mile (0800 meters)	DOD FLIP; AFI 11-2KC-135V3; AFI 11-2C-17V3, AAFBI 13-204V3
1 1/4 miles (2000 meters)	DOD FLIP	1/4 mile (0400 meters)	AFMAN 15-111

**A2.5. Runway Visual Range.** Reported whenever the prevailing visibility is first observed  $\leq$  1SM, again when the prevailing visibility goes above 1SM. The highest value during the preceding 10 minutes from the designated RVR runway decreases to less than, or if below, increases to equal or exceed the Table A2.4 values. RVR is first determined as unavailable (RVRNO) for the runway is use, and when it is first determined that the RVRNO report is no longer applicable, provided conditions for reporting RVR exist.

**Table A2.4. SPECI RVR Criteria.**

Criteria	Reference
6,000 feet	AFMAN 15-111; DOD FLIP
5,500 feet	DOD FLIP
5,000 feet	AFMAN 15-111
4,500 feet	DOD FLIP
4,000 feet	DOD FLIP; AFI 11-2C-17V3; AFI 11-2KC-135V3
3,500 feet	DOD FLIP
3,000 feet	DOD FLIP
2,800 feet	DOD FLIP
2,600 feet	DOD FLIP
2,400 feet	DOD FLIP; AFMAN 15-111
2,000 feet	AFMAN 15-111
1,600 feet	AFI 11-2KC-135V3; AFI 11-2C-17V3

**A2.6. Other Weather Elements.** Special observations will be taken when any of the Table A2.5 elements occur.



**Table A2.5. SPECI Criteria: Other Weather Elements.**

Criteria	Reference
<u>Wind Shift</u> : Wind direction changes by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift.	AFMAN 15-111
<u>Squall</u> : When squalls occur	AFMAN 15-111
<u>Volcanic Eruption</u> : Eruption or volcanic ash first observed	AFMAN 15-111
<u>Thunderstorm (occurring at station)</u> : begins or ends <u>Note</u> : A SPECI is not required to report the beginning of a new thunderstorm if one is currently reported.	AFMAN 15-111
<u>Precipitation</u> : (1) Hail ( $\geq 1/4$ " in diameter) begins or ends. (2) Freezing precipitation begins, ends, or changes intensity. (3) Ice pellets begin, end, or change intensity. (4) Any other type of precipitation begins or ends. <u>Note</u> : Except for freezing rain, freezing drizzle, and hail, a SPECI is not required for changes in type (e.g., drizzle changing to snow grains) or the beginning or ending of one type while another is in progress (e.g., snow changing to rain and snow).	AFMAN 15-111
<u>Tornado, Funnel Cloud, or Waterspout</u> : (1) Is observed (2) Disappears from sight or ends.	AFMAN 15-111
<u>Upon Resumption of Observing Function</u> : A special (SPECI) observation will be taken within 15-minutes after the weather technician returns to duty following a break in observing coverage or augmentation at the observing location unless a record observation is filed during that 15-minute period	AFMAN 15-111
<u>Aircraft Mishap</u> : Take an aircraft mishap SPECI immediately upon notification of an aircraft mishap at or near the observing location <u>Note</u> : This remark is not disseminated locally or longline	AFMAN 15-111
<u>Miscellaneous</u> : Any other meteorological situation that, in the weather technician's opinion, is critical	AFMAN 15-111

**A2.7. Altimeter Updates.** When backing up the AN/FMQ-19 pressure sensor, ALSTG update LOCALs will be taken at an interval not to exceed 35 minutes when there has been a change of 0.01 inch Hg (0.3 hPa) or more since the last reported ALSTG value. A METAR or SPECI taken within the established time interval meets this requirement. LOCALs are taken and disseminated to ATC agencies as soon as possible after the relevant altimeter setting change is observed.

## Attachment 3

## OBSERVATION/PIREP FORMAT

**A3.1. General.** This attachment provides an example format for METAR and SPECI observations and PIREPs. Further explanation and examples can be found in AFMANs 15-111 and 15-124.

**Figure A3.1. Example Observation Decoding.**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
METAR	KLTS	171955Z	AUTO	33030G37KT	6SM	BR	BKN032	10/03	A3008	RMK AO2 PK
WND	33037/1948	SLP187	T01040029	§						

**A3.2. Observation Formats.**

**A3.2.1. METAR/SPECI Format**

A3.2.1.1. (1) **Type of Observation.** Either an Aviation Routine Weather Report (METAR) or Special Observation (SPECI).

A3.2.1.2. (2) **Station Identifier.** KLTS is the long-line header for Altus AFB observations.

A3.2.1.3. (3) **Date/Time Group.** The date/time group (UTC) that the last element of the observation was observed.

A3.2.1.4. (4) **Mode of observation.** This will either state AUTO or will be blank. AUTO in this example indicates the observation was calculated and disseminated by the AN/FMQ-19 without any augmentation by the weather technician.

A3.2.1.5. (5) **Wind.** This portion of the observation provides the wind direction (first three numbers, VRB for variable, or 000 for Calm), sustained wind speed (next 2 or 3 numbers), and winds gusts (any numbers following the 'G') if there have been any measured in knots.

A3.2.1.6. (6) **Visibility.** Recorded in statute miles or fraction of a statute mile. Any value reported as 7 SM or greater is considered "unrestricted." Any value less than 7 SM will contain a visibility restrictor (BR, FG, RA, DZ, etc.).

A3.2.1.7. (7) **Present Weather.** Any weather phenomenon that is occurring on the airfield. This is mandatory anytime the visibility is less than 7 SM.

A3.2.1.8. (8) **Sky Condition.** Cloud bases in hundreds of feet Above Ground Level (AGL).

A3.2.1.9. (9) **Air temperature/DewPoint.** Measured in degrees Celsius (°C). The first value is the air temperature and the second value following the solidus is the dewpoint.

A3.2.1.10. (10) **Altimeter Setting.** measured in inches of mercury.

A3.2.1.11. (11) **Remarks.** Common remarks will be listed to include AO2 – Automated observation; AO2A – augmented observation, Peak Winds (PK WND); Sea Level Pressure (SLP); and hourly maximum and minimum temperature.

A3.2.2. **METAR/SPECI Formats.** METARs/SPECIs are formatted in local and longline formats. Local formats are produced in direct support of ATC operations and longline formats meets the requirements of DoD and world-wide meteorological agencies.

**Figure A3.2. Local METAR Formatted Example.**

```
KLTS METAR 0455Z AUTO 36014KT 10SM OVC025 07/02 ALSTG 29.81 RMK AO2 $ PA
+1476 DA +3045
```

**Figure A3.3. Longline METAR Formatted Example.**

```
METAR KLTS 180455Z AUTO 01014KT 10SM OVC025 07/02 A2981 RMK AO2 SLP297 $
```

**Figure A3.4. Local SPECI Formatted Example.**

```
KLTS SPECI 2344Z AUTO 05008KT 9SM -RA SCT015 OVC028 06/06 ALSTG 29.81 RMK AO2
$ PA +1476 DA +3045
```

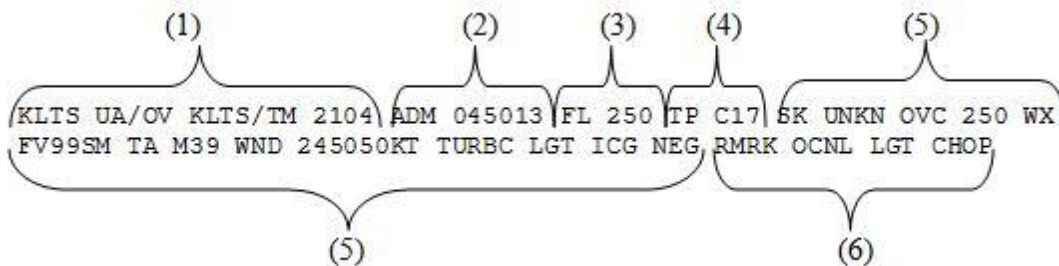
**Figure A3.5. Longline SPECI Formatted Example.**

```
SPECI KLTS 152344Z AUTO 06008KT 9SM -RA SCT015 OVC028 06/06 A2978 RMK AO2
SLP085 $
```

**A3.3. PIREP Format.** A PIREP is a report of meteorological phenomena encountered by an aircraft in flight. All PIREPs received by the WF that do not meet the standard dissemination criteria outlined in paragraph A3.3.1 but are significant to flying operations and flight safety will be verbally passed along to aircrews, ATC agencies/SOF (if received from another credible source since JET doesn't allow the local dissemination of PIREPS. All PIREPS meeting standard dissemination criteria will be transmitted longline via JET. Back-up options include using the AFW-WEBS Alphanumeric upload option.

A3.3.1. **At a minimum,** a PIREP must contain the transmitting organization, a message type, location, time, flight level, type of aircraft, and at least one other element.

**Figure A3.6. Example PIREP Decoding.**



### A3.3.2. PIREP Format.

A3.3.2.1. (1) **Header and time.** Routine (UA) PIREP received by the WF at 2104 UTC.

A3.3.2.2. (2) **Aircraft location.** 13 nautical miles northeast (045-degree radial) of Ardmore, OK.

A3.3.2.3. (3) **Flight level.** 25,000 feet.

A3.3.2.4. (4) **Aircraft type.** C17.

A3.3.2.5. (5) **Text.** (cloud bases and tops if known, temperature, winds, turbulence, icing, etc.).

A3.3.2.5.1. **Sky condition (SK).** Flying above an overcast cloud layer with bases unknown and tops at 25,000 feet.

A3.3.2.5.2. **Visibility at flight level (FV).** Unrestricted (99) statute miles.

A3.3.2.5.3. **Ambient Air Temperature (TA).** Minus 39°C.

A3.3.2.5.4. **Wind.** From 245 degrees at 50 knots (3 digits if needed).

A3.3.2.5.5. **Turbulence.** Light.

A3.3.2.5.6. **Icing.** None.

A3.3.2.5.7. (6) **Remarks.** Occasional light chop (turbulence).

A3.3.3. For more information on encoding and decoding PIREPS, see AFMAN 15-124, *Meteorological Codes*

## Attachment 4

## TAF FORMAT/CRITERIA

**A4.1. General.** Terminal Aerodrome Forecasts (TAF) are issued by the 26 OWS for AAFB. This attachment provides the TAF format, a sample TAF, and criteria for specification and amendments.

**A4.2. TAF Format.****Figure A4.1. Sample TAF for AAFB.**

The diagram shows a sample TAF for AAFB with numbered callouts (1) through (10) identifying specific elements:

(1) TAF (2) KLTS (3) 0617/0723 (4) VRB06KT (5) 8000 (6) -RA (7) OVC040 (8) 510006 (9) QNH3010INS

(9) TEMPO 0623/0702 VRB25G45KT 1600 TSRAGR SCT005 BKN015 OVC030CB

BECMG 0702/0703 35010G15KT 9999 SCT015 BKN050 QNH3010INS (10) T24/0701 T10/0712

A4.2.1. The TAF in FigureA4.1 is encoded/decoded below:

- A.4.2.1.1. (1) Location Identifier.
- A.4.2.1.2. (2)Valid time in UTC (30-hour format).
- A.4.2.1.3. (3) Winds (degrees magnetic in knots, 3 digits if needed).
- A.4.2.1.4. (4) Visibility (in meters).
- A.4.2.1.5. (5) Weather and/or obstructions to vision (if none, no entry will appear).
- A.4.2.1.6. (6) Sky conditions (cloud bases in hundreds of feet AGL).
- A.4.2.1.7. (7) Icing (5) and/or turbulence (6) as required.
- A.4.2.1.8. (8) Minimum altimeter setting for the forecast period.
- A.4.2.1.9. (9) Change Group identifier (BECMG, TEMPO).
- A.4.2.1.10. (10) Temperature (forecast maximum and minimum for the 24-hour period).

A4.2.2. For more information on encoding and decoding TAF code, see AFMAN 15-124.

**A4.3. TAF Specification and Amendment Criteria.** The 30-hour forecast specifies the time of occurrence (to the nearest hour), the duration, and the intensity (where applicable) of the weather elements listed below. The weather elements listed in Table A4.1 must be considered when issuing the TAF for AAFB and if expected to occur will be included in the forecast. If at any time the conditions listed in this section occur but are not correctly forecast or are forecast to occur and do not occur by the specified predominant change group ending time, the TAF must be amended.

**Table A4.1. TAF Specification and Amendment Criteria.**

Forecast Element	TAF Amendment Criteria
------------------	------------------------

Ceiling or Prevailing Visibility observed or expected to decrease to less than, or if below, increase to equal or exceed:	<table border="1"> <thead> <tr> <th>Category</th><th>Limits</th></tr> </thead> <tbody> <tr> <td>E</td><td><math>\geq 2,000</math> ft/3 statute miles</td></tr> <tr> <td>D</td><td><math>&lt; 2,000</math> ft but <math>\geq 1,000</math> ft/<math>&lt; 3</math> but <math>\geq 2</math> statute miles</td></tr> <tr> <td>C</td><td><math>&lt; 1,000</math> ft and <math>\geq 700</math> ft/<math>&lt; 3</math> but <math>\geq 2</math> statute miles</td></tr> <tr> <td>B</td><td><math>&lt; 700</math> ft and <math>\geq 200</math> ft/<math>&lt; 2</math> but <math>\geq 1/2</math> statute miles</td></tr> <tr> <td>A</td><td><math>&lt; 200</math> ft/<math>&lt; 1/2</math> statute mile</td></tr> </tbody> </table> <p>The lower of the values determines categories.</p>	Category	Limits	E	$\geq 2,000$ ft/3 statute miles	D	$< 2,000$ ft but $\geq 1,000$ ft/ $< 3$ but $\geq 2$ statute miles	C	$< 1,000$ ft and $\geq 700$ ft/ $< 3$ but $\geq 2$ statute miles	B	$< 700$ ft and $\geq 200$ ft/ $< 2$ but $\geq 1/2$ statute miles	A	$< 200$ ft/ $< 1/2$ statute mile
Category	Limits												
E	$\geq 2,000$ ft/3 statute miles												
D	$< 2,000$ ft but $\geq 1,000$ ft/ $< 3$ but $\geq 2$ statute miles												
C	$< 1,000$ ft and $\geq 700$ ft/ $< 3$ but $\geq 2$ statute miles												
B	$< 700$ ft and $\geq 200$ ft/ $< 2$ but $\geq 1/2$ statute miles												
A	$< 200$ ft/ $< 1/2$ statute mile												
Surface Winds	<p>a. <u>Wind Speed</u>: The difference between the predominant wind speed and the forecast wind speed is <math>\geq 10</math> knots</p> <p>b. <u>Wind Gusts</u>: The difference between observed gusts and the forecast is <math>\geq 10</math> knots</p> <p>c. <u>Wind Direction</u>: A change <math>&gt; 30</math> degrees when the predominant wind speed or gusts are expected to be 15 knots or greater.</p>												
Icing, not associated with thunderstorms, from the surface to 10,000ft Above Ground Level (AGL)	The beginning or ending of icing first meets, exceeds, or decreases to less than moderate (or greater) thresholds and was not specified in the forecast												
Turbulence (for weather category II aircraft), not associated with thunderstorms from the surface to 10,000ft AGL	The beginning or ending of turbulence first meets, exceeds, or decreases to less than moderate (or greater) thresholds and was not specified in the forecast												
Weather Warning Criteria	<p>Occur, or are expected to occur during the forecast period, but were not specified in the forecast</p> <p>Specified in the forecast but are no longer expected to occur during the forecast period</p>												
Altimeter Setting	<p>Altimeter setting meets or exceeds 31.00 INS and was not specified in the forecast</p> <p>Altimeter setting, if above, drops below 31.00 INS and was not specified during the forecast period</p> <p>Altimeter setting drops below 28.00 INS and was not specified in the forecast</p> <p>Altimeter setting, if below 28.00 INS, increases above 28.00 INS and was not specified in the forecast</p>												

Forecast Weather Advisory Criteria issued for amendable TAF criteria.	<p>Occur, or are expected to occur during the forecast period, but were not specified in the forecast</p> <p>Specified in the forecast but are no longer expected to occur during the forecast period</p> <p>NOTE: AAFB does not currently issue any Forecast Weather Advisories</p>
Thunderstorms	Incorrect forecast start or end time
Specification of Temporary Conditions (TEMPO group)	<p>Forecast conditions specified as temporary become predominant conditions.</p> <p>Forecast conditions specified as temporary do not occur during the cardinal hour as forecast</p> <p>Forecast conditions specified as temporary are no longer expected to occur</p>
Changes to Predominant Conditions (BECMG or FM group)	<p>Forecast change conditions occur before the beginning of the specified period of change and are expected to persist</p> <p>Forecast change conditions do not occur within 30 minutes after the specified time.</p> <p>Forecast change conditions are no longer expected to occur</p>
Representative Conditions	Forecast conditions are not considered representative of existing or forecast conditions and amending the forecast improves safety, flight planning, operations efficiency, or assistance to in-flight aircraft

**A4.4. TAF Amendment Actions.** 26 OWS is primarily responsible for TAF amendment. In the event that 26 OWS is unable to amend, the WF will amend the TAF during duty hours.

**A4.5. Remarks.** The 26 OWS utilizes the following remarks accordingly. NOTE: YYGG/YYGG = Date/Time Group.

**A4.5.1. Limited METWATCH.** The 26 OWS will append the last line of the TAF with the words “LIMITED METWATCH YYGG TIL YYGG” when the airfield is open and no weather personnel are on duty and an operational automated sensor is not in use.

**A4.5.2. Last No Amendments.** The 26 OWS will append the last line of the TAF with the words “LAST NO AMDS AFT YYGG NEXT YYGG” when the airfield is closed and a TAF is not required.

## Attachment 5

## WATCH/WARNING/ADVISORY FORMAT

**A5.1. General.** This attachment explains format and notification procedures for AAFB WWAs.

**Figure A5.1. Weather Watch Example.**

Weather Watch 04-025 for Altus AFB (KLTS)  
Valid 19/1900Z (19/1300L) to 20/0100Z (19/1900L)  
Potential for Lightning exists within 5 nm at Altus AFB.

**Figure A5.2. Weather Warning Example.**

Weather Warning 04-026 for Altus AFB (KLTS)  
Valid 19/2000Z (19/1400L) to 20/0100Z (19/1900L)  
Freezing Precipitation (Any Intensity) Forecast Value 2 inches is forecast to occur at  
Altus AFB

**Figure A5.3. Weather Advisory Example.**

Weather Advisory 04-024 for Altus AFB (KLTS)  
Valid 19/1900Z (19/1300L) UFN  
Observed Crosswinds >= 25 kts observed at 25 kts are occurring at Altus AFB

**A5.2. Basic Format Elements.** The following criterion identifies the basic elements required in generating a WWA and identifies the validity of the alarm.

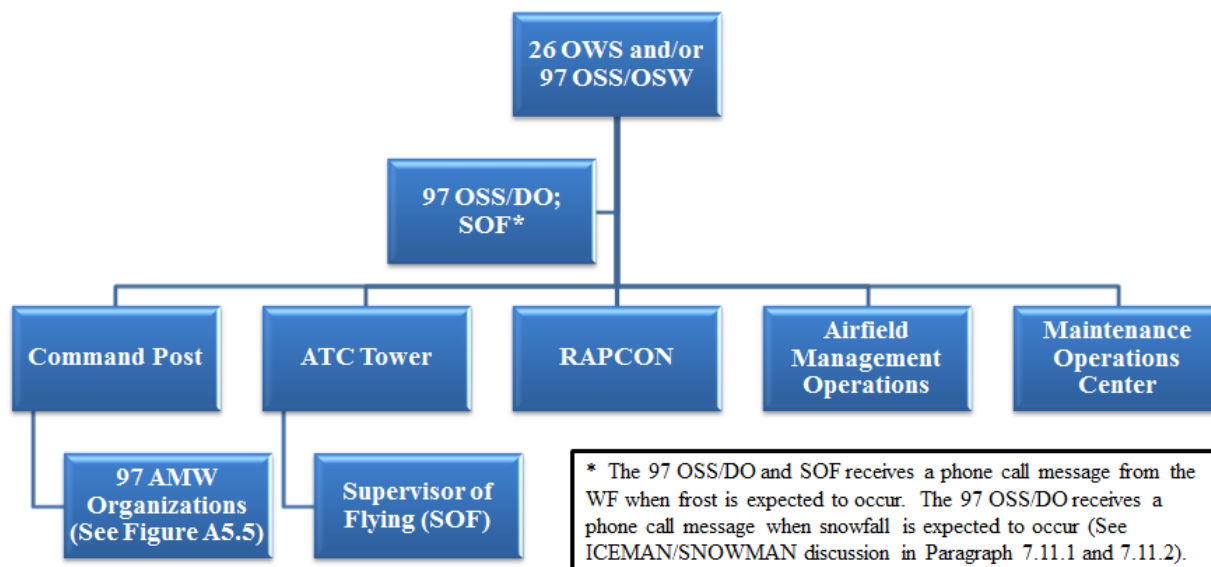
**A5.2.1. AAFB header and WWA number.** Format numbering sequence is identified with the two-digit month, followed by the consecutive number of WWAs generated during that month. For example, “Weather Watch 04-025 for Altus AFB (KLTS)” would indicate that this is the 25th weather watch generated in the month of April.

**A5.2.2. WWA valid times.** The start and end times of WWAs are indicated in UTC (CST or CDT) to UTC (CST or CDT). For example, “Valid 18/1900Z (18/1300L) to 19/0100Z (18/1900L)” indicates the time period of validity assuming the +6 hr conversion to UTC.

**A5.2.3. Text of the WWA.** Provides detailed explanation to the watch, warning or advisory and any additional remarks required (i.e. maximum value expected). For example, “Potential for Lightning exists within 5 nm at Altus AFB” indicates that a lightning watch is in effect for AAFB; lighting is expected to occur within 5NM.

**A5.3. Dissemination.** AAFB employs a pyramid notification network process to promptly disseminate, extend or cancel weather watches, warnings and advisories. Figure A5.4, shown below, identifies the agencies immediately notified. Agencies may monitor the status of watches, warnings and advisories via the WF SharePoint page at <https://97amw.portal.altus.af.mil/sites/OG/oss/weather/default.aspx> by clicking on the “Weather Watches, Warnings, and Advisories” link at the top of the webpage or by directly accessing the 26 OWS webpage at [https://26ows.us.af.mil/bv\\_type/wwa/index.cfm?UID=&BW=H&UF=O&AOR=1&USEHF=1](https://26ows.us.af.mil/bv_type/wwa/index.cfm?UID=&BW=H&UF=O&AOR=1&USEHF=1)

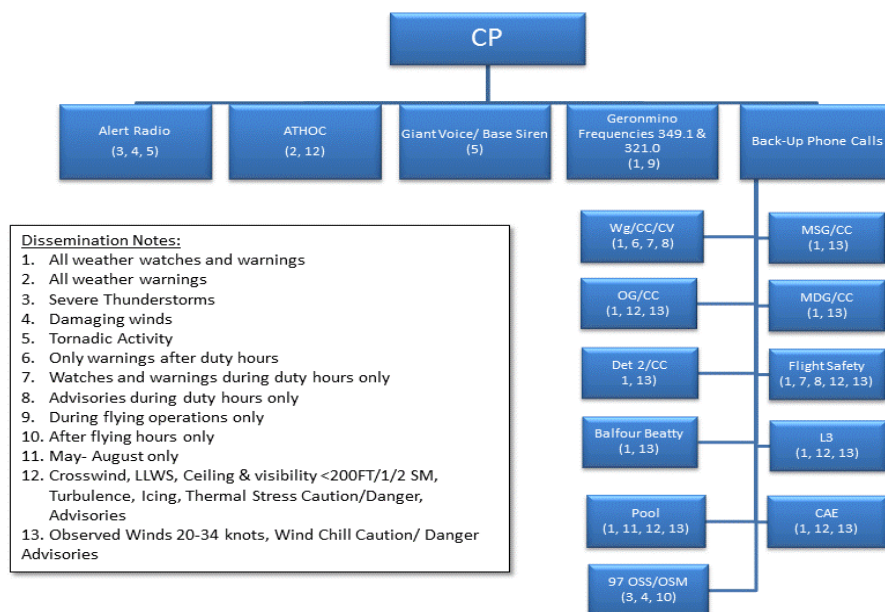


**Figure A5.4. Weather Watch/Warning/Advisory Notification Pyramid.**

**A5.3.1. The 26 OWS and/or WF Role.** The 26 OWS and/or WF initiates the notification process by disseminating, extending or canceling WWAs via JET.

**A5.3.2. 97 AMW/CP Role.** The CP assumes responsibility for further dissemination via a variety of different methods dependent on the specific weather watch, warning, and/or advisory. The CP will initiate local checklists based upon the watch, warning or advisory issued. Figure A5.5 identifies the agencies listed on CP checklists that receive watch, warning, and/or advisory notifications.

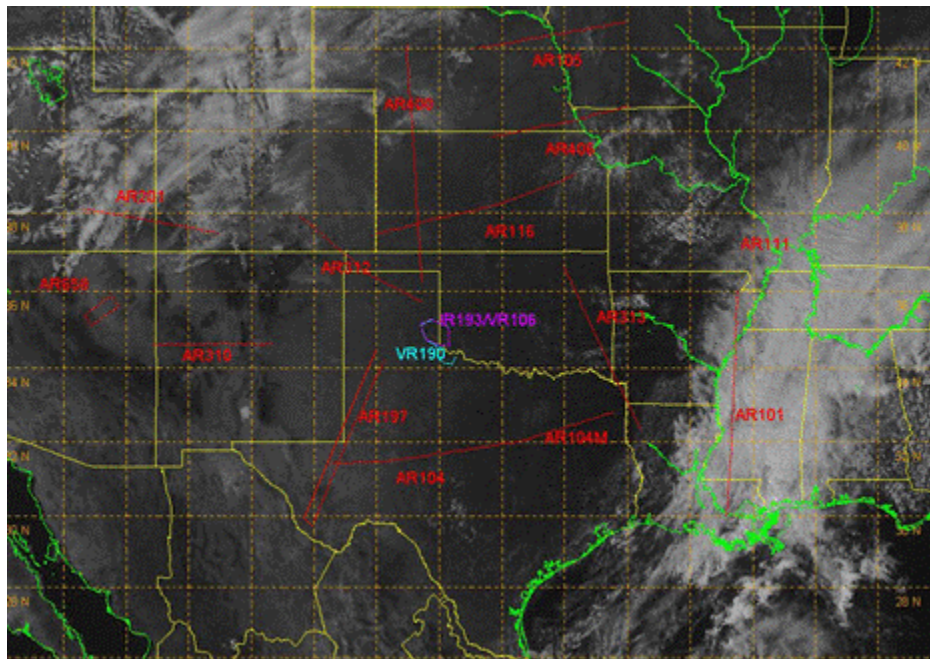
**Figure A5.5. Agencies notified via 97 AMW/CP of weather watches, warnings, and advisories.**



**A5.3.3. AAFB Agency Responsibilities.** Individual organizations will follow internal notification procedures to inform subordinate units.

**A5.4. Outages.** In the event JET or its communication channels are disrupted, the WF and/or 26 OWS will utilize e-mail, fax, or phone calls to disseminate the information of watches, warnings and advisories to agencies listed in Figure A5.4.

**Figure A6.1. Common Air Refueling Tracks.**



**Figure A6.2. Common Military Training Routes.**

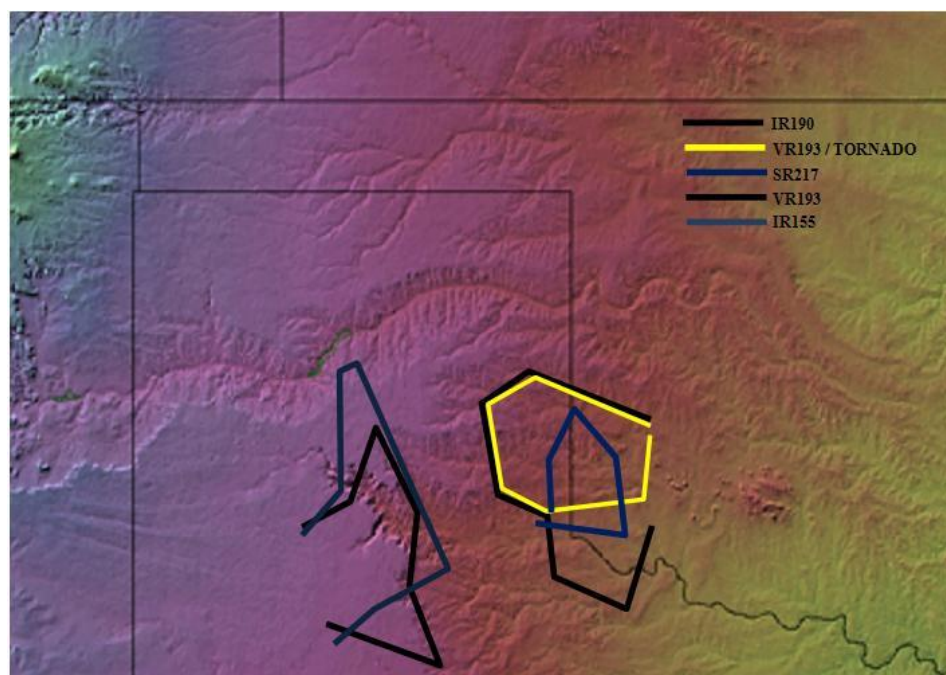


Figure A6.3. Sooner Drop Zone.

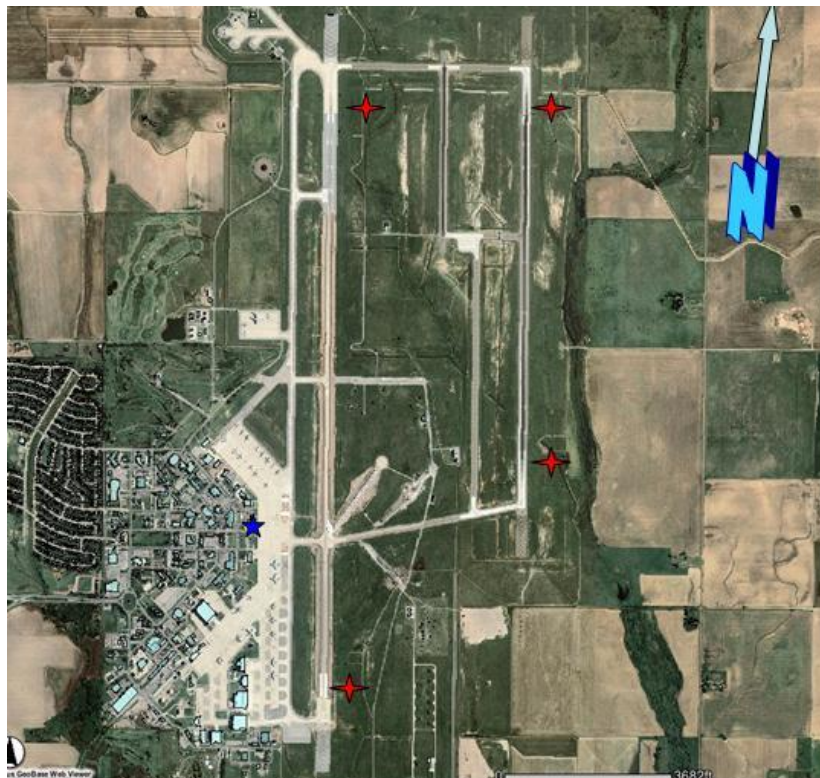




## Attachment 7

## METEOROLOGICAL SENSING EQUIPMENT/OBSERVATION LOCATIONS

Figure A7.1. The AN/FMQ-19 AMOS Sensor Locations.





	AN/FMQ-19 Sensors
	Weather Flight Bldg 185

Figure A7.2. The WF Backup Primary Observation Point(s).

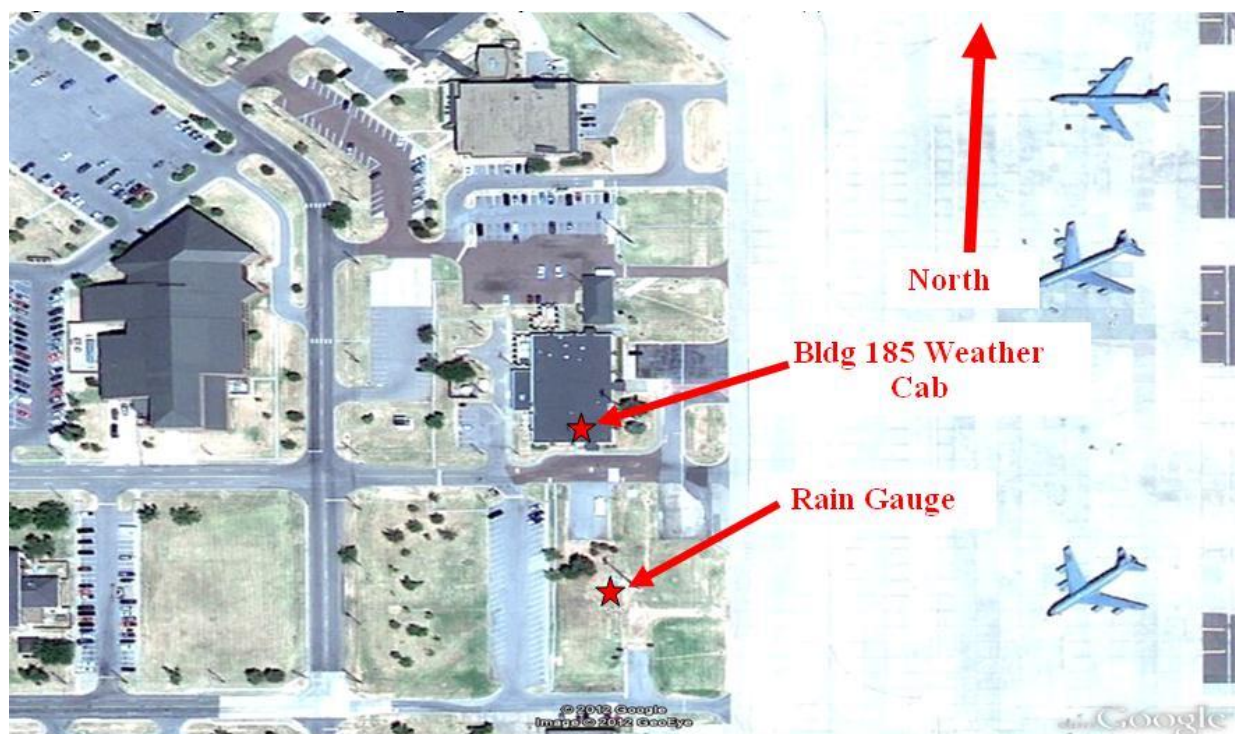
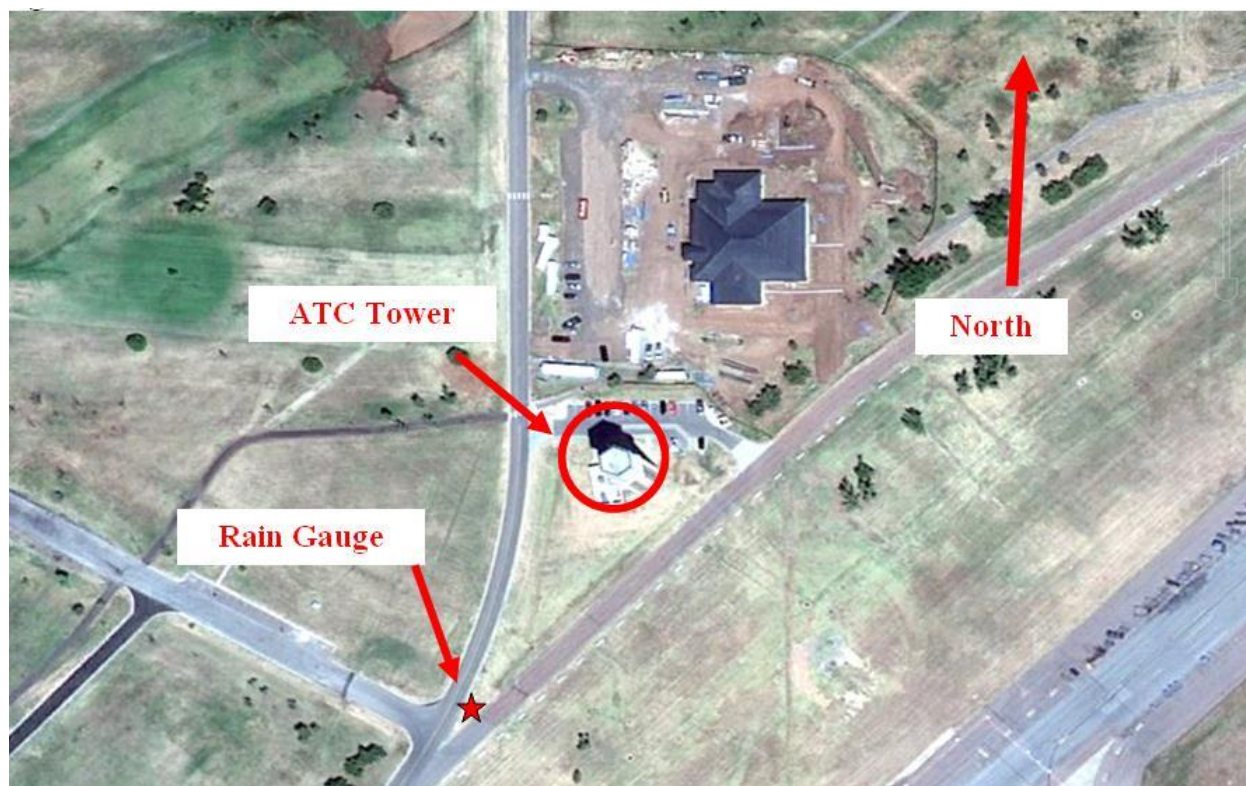


Figure A7.3. The WF AOL Official Observation Point.



## Attachment 8

## 97 AMW SUPPORTED ACTIVITIES/OPERATIONS WEATHER SENSITIVITIES

Table A8.1. 54 ARS and 730 AMTS (KC-135 Ops) Customer Response Actions.

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	* Secure outside equipment * Alert personnel
Tornado Warning†	Tornadic activity imminent/sighted	* Secure classified * Take cover
Severe Thunderstorm Watch†	Damaging Hail $\geq 3/4"$ in diameter and/or Damaging Winds $\geq 50$ kts	* Closely watch to determine Go/No-Go and/or divert * Retract flaps * No open cargo door ( $\geq 65$ knots)
Severe Thunderstorm Warning†		* Closely watch to determine Go/No-Go and/or divert * Retract flaps * No open cargo door ( $\geq 65$ knots)
Damaging Wind Watch†	Winds $\geq 50$ kts (not associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert * Retract flaps * No open cargo door ( $\geq 65$ knots)
Damaging Wind Warning†		
Moderate Thunderstorm Warning	Large Hail $\geq 1/4"$ but $< 3/4"$ in diameter and/or Winds $\geq 35$ but $< 50$ kts (associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert * Retract flaps
Strong Wind Warning	Winds $\geq 35$ but $< 50$ kts (not associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert
Lightning Watch	Lightning potential exists w/in 5 NM of AAFB	* Closely watch to determine Go/No-Go and/or divert
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	
Freezing Precipitation	Any Intensity	* Closely watch to determine Go/No-Go and/or divert * Horizontal stab 2.5 down

Watch†		
Freezing Precipitation Warning†		
Blizzard Watch†	≥ 3 hours, sustained winds or gusts ≥ 30 kts, considerable falling and/or blowing snow, surface visibility ≤ 1/4 SM (all criteria must be met)	<ul style="list-style-type: none"> <li>* Closely watch to determine Go/No-Go and/or divert</li> <li>* Horizontal stab 2.5 down</li> </ul>
Blizzard Warning†		
Heavy Snow Watch†	≥ 1/2" in 12 hrs	<ul style="list-style-type: none"> <li>* Closely watch to determine Go/No-Go and/or divert</li> <li>* Horizontal stab 2.5 down</li> <li>* Prioritize de-ice for schedule</li> </ul>
Heavy Snow Warning†		<ul style="list-style-type: none"> <li>* Closely watch to determine Go/No-Go and/or divert</li> <li>* Horizontal stab 2.5 down</li> </ul>
Heavy Rain Watch	≥ 2" in 12 hrs	<ul style="list-style-type: none"> <li>* Closely watch to determine Go/No-Go and/or divert</li> </ul>
Heavy Rain Warning		
Crosswind Advisory	≥ 15 kts but < 20 kts	<ul style="list-style-type: none"> <li>* No touch-n-go</li> <li>* Impacts some student training</li> <li>* Peak x-wind will determine go-no-go</li> </ul>
	≥ 20 kts but < 25 kts	
	≥ 25 kts	* All ops restricted
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	<ul style="list-style-type: none"> <li>* Min ground speed w/ ≥15kt shear (depends on severity)</li> <li>* May cause flight ops to cease</li> </ul>
Ceiling and Visibility Advisory	≤ 200FT AGL/1/2SM	<ul style="list-style-type: none"> <li>* No approaches or landings</li> <li>* No training ops</li> <li>* Can launch operational missions</li> </ul>
Atmospheric Turbulence Advisory	≥ Moderate SFC-10,000FT AGL	<ul style="list-style-type: none"> <li>* No sustained flight (coord w/ WF to avoid)</li> <li>* Mod = OK, (check shear)</li> <li>* Severe = No GO</li> </ul>
Atmospheric Icing Advisory	≥ Moderate SFC-10,000FT AGL	<ul style="list-style-type: none"> <li>* No sustained flight (coordinate with WF to avoid)</li> <li>* Flight into severe icing is prohibited</li> </ul>
Thermal Stress Caution Advisory	90°F - 99°F (32°C - 37°C)	<ul style="list-style-type: none"> <li>* Limit ground time for crews on the ramp</li> </ul>



Thermal Stress Danger Advisory	$\geq 100^{\circ}\text{F}$ ( $38^{\circ}\text{C}$ )	* Limit ground time for crews on the ramp
Wind Chill Caution Advisory	$\leq 32^{\circ}\text{F}$ ( $0^{\circ}\text{C}$ )	* Limit ground time for crews on the ramp
Wind Chill Danger Advisory	$\leq -20^{\circ}\text{F}$ (- $29^{\circ}\text{C}$ )	* Limit ground time for crews on the ramp
Surface Wind Advisory	$\geq 20$ but $< 35$ kts	* Closely watch to determine Go/No-Go and/or divert
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.2. 58 AS and 730 AMTS (C-17 Ops) Customer Response Actions**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	* Secure outside equipment * Alert personnel
Tornado Warning†	Tornadic activity imminent/sighted	* Secure classified * Take cover
Severe Thunderstorm Watch†	Damaging Hail $\geq 3/4''$ in diameter and/or Damaging Winds $\geq 50$ kts	* Closely watch to determine Go/No-Go and/or divert
Severe Thunderstorm Warning†		* Closely watch to determine Go/No-Go and/or divert
Damaging Wind Watch†	Winds $\geq 50$ kts (not associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert
Damaging Wind Warning†		
Moderate Thunderstorm Warning	Large Hail $\geq 1/4''$ but $< 3/4''$ in diameter and/or Winds $\geq 35$ but $< 50$ kts (associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert
Strong Wind Warning	Winds $\geq 35$ but $< 50$ kts (not associated with thunderstorms)	* Closely watch to determine Go/No-Go and/or divert

Lightning Watch	Lightning potential exists w/in 5 NM of AAFB	* Closely watch to determine Go/No-Go and/or divert
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	
Freezing Precipitation Watch†	Any Intensity	* Closely watch to determine Go/No-Go and/or divert
Freezing Precipitation Warning†		
Blizzard Watch†	≥ 3 hours, sustained winds or gusts ≥ 30 kts, considerable falling and/or blowing snow, surface visibility ≤ 1/4 SM (all criteria must be met)	* Closely watch to determine Go/No-Go and/or divert
Blizzard Warning†		
Heavy Snow Watch†	≥ 1/2" in 12 hrs	* Closely watch to determine Go/No-Go and/or divert * Prioritize de-ice for schedule
Heavy Snow Warning†		* Closely watch to determine Go/No-Go and/or divert
Heavy Rain Watch	≥ 2" in 12 hrs	* Closely watch to determine Go/No-Go and/or divert
Heavy Rain Warning		
Crosswind Advisory	≥ 15 kts but < 20 kts	* No NVG training ops * Impacts some student training * Restrictions all students on Assault Ops * Possible restrictions PIQ on Touch-N-Go * Possible restrictions PIQ on T/O or Full Stop
	≥ 20 kts but < 25 kts	* Possible NVG operational msn restrictions * Impacts some student training * Possible restrictions all others on Touch-N-Go * Peak x-wind will determine Go/No Go

	$\geq 25$ kts but $< 30$ kts	<ul style="list-style-type: none"> <li>* Possible NVG operational msn restrictions</li> <li>* Impacts some student training</li> <li>* No Touch-N-Go</li> <li>* Possible restrictions all others on T/O or Full Stop</li> <li>* Peak x-wind will determine Go/No Go</li> </ul>
	$\geq 30$ kts	* All ops restricted
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	* N/A
Ceiling and Visibility Advisory	$\leq 200$ FT AGL/1/2SM	* Only initial takeoffs and full stop landings
Atmospheric Turbulence Advisory	$\geq$ Moderate SFC-10,000FT AGL	* Flight into severe turbulence prohibited
Thermal Stress Caution Advisory	90°F - 99°F (32°C - 37°C)	* Limit ground time for crews on the ramp
Thermal Stress Danger Advisory	$\geq 100$ °F (38°C)	* Limit ground time for crews on the ramp
Wind Chill Caution Advisory	$\leq 32$ °F (0°C)	* Limit ground time for crews on the ramp
Wind Chill Danger Advisory	$\leq -20$ °F (-29°C)	* Limit ground time for crews on the ramp
Surface Wind Advisory	$\geq 20$ but $< 35$ kts	* Closely watch to determine Go/No-Go and/or divert
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.3. 97 Mx Customer Response Actions.**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	<ul style="list-style-type: none"> <li>* Ask Pro Sups if their aircraft need to be moored, moved, or secured prior to severe weather</li> <li>* If required, provide crash recover trailer/crane/special purpose vehicle</li> </ul>
Tornado Warning†	Tornadic activity imminent/sighted	* Take cover
Severe Thunderstorm Watch†	Damaging Hail $\geq 3/4$ " in diameter and/or	<ul style="list-style-type: none"> <li>* Close all hanger doors</li> <li>* Cease axle/full jacking operations</li> <li>* Remove non-essential equip away from aircraft</li> </ul>

	Damaging Winds ≥ 50 kts	<ul style="list-style-type: none"> <li>* No towing, refueling or engine runs</li> <li>* No work inside aircraft</li> <li>* Close all hatches, entry doors and secure all panels</li> <li>* Remove mx vehicles from the flight line</li> </ul>
Severe Thunderstorm Warning†		<ul style="list-style-type: none"> <li>* Terminate all maintenance</li> <li>* All personnel off flight line</li> </ul>
Damaging Wind Watch†	Winds ≥ 50 kts (not associated with thunderstorms)	<ul style="list-style-type: none"> <li>* All hatches, cowlings, crew entry doors closed and loose panels secured</li> <li>* Fire bottles lowered and pushed against NLG tires</li> <li>* All vehicles moved to a designated parking space</li> </ul>
Damaging Wind Warning†		<ul style="list-style-type: none"> <li>* Terminate all maintenance</li> <li>* All other aircraft mx personnel off flight line</li> </ul>
Moderate Thunderstorm Warning	Large Hail ≥ 1/4" but < 3/4" in diameter and/or Winds ≥ 35 but < 50 kts (associated with thunderstorms)	<ul style="list-style-type: none"> <li>* Cease axle jacking operations</li> <li>* Terminate non-essential mx and suggest all non-essential mx personnel evacuate the flight line</li> <li>* Hanger doors are not operated unless emergency dictates</li> <li>* Cease all fuel cell mx</li> <li>* All flight line support equip not in use will be removed and secured in the designated FLSE sub-pool area with cables or chains. Cease use of all powered/non-powered stands. Remove from flight line and secure.</li> </ul>
Strong Wind Warning	Winds ≥ 35 but < 50 kts (not associated with thunderstorms)	<ul style="list-style-type: none"> <li>* Cease axle jacking operations</li> <li>* Terminate non-essential mx and suggest all non-essential mx personnel evacuate the flight line</li> <li>* Hanger doors are not operated unless emergency dictates</li> <li>* Cease all fuel cell mx</li> <li>* All flight line support equip not in use will be removed and secured in the designated FLSE sub-pool area with cables or chains. Cease use of all powered/non-powered stands. Remove from flight line and secure.</li> </ul>
Lightning Watch	Lightning potential exists w/in 5 NM of AAFB	<ul style="list-style-type: none"> <li>* Notify all mx shops of event</li> <li>* Remove non-essential AGE from flight line</li> <li>* Close all aircraft hatches, entry doors and secure all panels</li> </ul>
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	<ul style="list-style-type: none"> <li>* Pro Sups terminate all exterior mx ops immediately UFN</li> <li>* Pro Sups terminate all interior electrical and avionics ops immediately. Personnel remaining inside the aircraft will ensure all doors, hatches, and windows are closed</li> </ul>

		<ul style="list-style-type: none"> <li>* MIS notified to safeguard ESD sensitive equipment</li> <li>* All other aircraft mx personnel evacuate flight line</li> <li>* Perform a visual inspection of all aircraft for possible lightning strike damage after lightning passes</li> </ul>
Freezing Precipitation Watch†	Any Intensity	<ul style="list-style-type: none"> <li>* Close all aircraft windows and hatches</li> <li>* Raise flaps and slats</li> </ul>
Freezing Precipitation Warning†	Any Intensity	<ul style="list-style-type: none"> <li>* Move powered AGE and vehicles inside when not in use</li> </ul>
Blizzard Watch†	$\geq 3$ hours, sustained winds or gusts $\geq 30$ kts, considerable falling and/or blowing snow, surface visibility $\leq 1/4$ SM (all criteria must be met)	<ul style="list-style-type: none"> <li>* Close all aircraft windows and hatches</li> </ul>
Blizzard Warning†		
Heavy Snow Watch†	$\geq 1/2''$ in 12 hrs	<ul style="list-style-type: none"> <li>* Close all aircraft windows and hatches</li> </ul>
Heavy Snow Warning†		
Heavy Rain Watch	$\geq 2''$ in 12 hrs	<ul style="list-style-type: none"> <li>* Close all aircraft windows and hatches</li> </ul>
Heavy Rain Warning		
Ceiling and Visibility Advisory	$\leq 200$ FT AGL/ $1/2$ SM	<ul style="list-style-type: none"> <li>* (Vis &lt; 300 feet) Refueling and explosive loaded vehicles will not be operated unless authorized by the Wg/CC</li> <li>* (Vis &lt; 100 feet) Pro Sups will ensure that PMVs and flight line vehicles will not be operated on the flight line. Flashing lights will be used on all vehicles temporarily parked on the aircraft parking ramps</li> </ul>
Wind Chill Danger Advisory	$\leq -20^{\circ}\text{F}$ $29^{\circ}\text{C}$ )	<ul style="list-style-type: none"> <li>* Limit personnel workload to essential duties</li> <li>* Observe time spent on outside activities</li> </ul>
Surface Wind Advisory	$\geq 20$ but < 35 kts	<ul style="list-style-type: none"> <li>* All full jacking operations on the flight line should be ceased (full jack limits for KC-135 is 20 kts/27 kts for C-17)</li> <li>* Remove all non-essential AGE equip in the vicinity of aircraft</li> <li>* Close aircraft cargo doors, windows, and hatches</li> </ul>

		<ul style="list-style-type: none"> <li>* Close all hangar doors when not required</li> <li>* For wind speeds above 25 kts, cease use of B-2, B-7, and C-17 engine mx stands and genie lift and remove from flight line and secure</li> <li>* B-5 stands may be used but not extended</li> </ul>
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.4. 97 LRS (~~Traffic Management~~) Customer Response Actions.**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	* Secure loose cargo and warehouse items
Tornado Warning†	Tornadic activity imminent/sighted	* Take cover
Severe Thunderstorm Warning†	Damaging Hail $\geq 3/4"$ in diameter and/or Damaging Winds $\geq 50$ kts	* Secure loose cargo and warehouse items
Damaging Wind Warning†	Winds $\geq 50$ kts (not associated with thunderstorms)	* Secure loose cargo and warehouse items
Moderate Thunderstorm Warning	Large Hail $\geq 1/4"$ but $< 3/4"$ in diameter and/or Winds $\geq 35$ but $< 50$ kts (associated with thunderstorms)	* Secure loose cargo and warehouse items
Freezing Precipitation Warning†	Any Intensity	* Caution Drivers
Blizzard Warning†	$\geq 3$ hours, sustained winds or gusts $\geq 30$ kts, considerable falling and/or blowing snow, surface visibility $\leq 1/4$ SM (all criteria must	* Caution Drivers

	be met)	
Heavy Snow Warning†	≥ 1/2" in 12 hrs	* Caution Drivers
Heavy Rain Warning	≥ 2" in 12 hrs	* Caution Drivers
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.5. 97 OSS (OSM) Customer Response Actions.**

Criterion		Customer Actions
Tornado Warning†	Tornadic activity imminent/sighted	* Notify Radar/Airfield Systems & Ground Mx * Take cover
Severe Thunderstorm Warning†	Damaging Hail ≥ 3/4" in diameter and/or Damaging Winds ≥ 50 kts	* Notify Radar Mx to free-wheel DASR antenna for winds at 80kts
Damaging Wind Warning†	Winds ≥ 50 kts (not associated with thunderstorms)	* Notify Radar Mx to free-wheel DASR antenna for winds at 80kts
Moderate Thunderstorm Warning	Large Hail ≥ 1/4" but < 3/4" in diameter and/or Winds ≥ 35 but < 50 kts (associated with thunderstorms)	* Notify Radar/Airfield Systems & Ground Mx
Freezing Precipitation Warning†	Any Intensity	* Notify Radar/Airfield Systems & Ground Mx
Blizzard Warning†	≥ 3 hours, sustained winds or gusts ≥ 30 kts,	* Notify Radar/Airfield Systems & Ground Mx

	considerable falling and/or blowing snow, surface visibility $\leq$ 1/4 SM (all criteria must be met)	
Heavy Snow Warning†	$\geq$ 1/2" in 12 hrs	* Notify Radar/Airfield Systems & Ground Mx
Wind Chill Caution Advisory	$\leq$ 32°F (0°C)	* Notify Radar Mx, Airfield Systems and Ground Radio
Surface Wind Advisory	$\geq$ 20 but < 35 kts	* Notify Radar Mx
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.6. 97 OSS (OSAR) Customer Response Actions.**

Criterion		Customer Actions
Tornado Warning†	Tornadic activity imminent/sighted	* Notify Radar Mx * DASR antenna free-wheeled at 80 kts * Take cover
Severe Thunderstorm Warning†	Damaging Hail $\geq$ 3/4" in diameter and/or Damaging Winds $\geq$ 50 kts	* Notify Radar Mx * DASR antenna free-wheeled at 80 kts * Take cover
Damaging Wind Warning†	Winds $\geq$ 50 kts (not associated with thunderstorms)	* Notify Radar Mx * DASR antenna free-wheeled at 80 kts * Take cover
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	* Advise aircrews * Solicit PIREPS
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.7. 97 OSS (OSAT) Customer Response Actions.**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	* Advise aircrews and record on ATIS * Notify all tower personnel and advise them to stay indoors
Tornado Warning†	Tornadic activity imminent/sighted	* Advise aircrews and record on ATIS * Initiate/complete tower evacuation
Severe	Damaging Hail	* Advise aircrews and record on ATIS



Thunderstorm Watch†	≥ 3/4" in diameter and/or	* Notify all tower personnel and advise them to stay indoors
Severe Thunderstorm Warning†	Damaging Winds ≥ 50 kts	* Advise aircrews and record on ATIS * Evacuate Tower (70kts) * Take cover
Damaging Wind Watch†	Winds ≥ 50 kts (not associated with thunderstorms)	* Advise aircrews and record on ATIS
Damaging Wind Warning†		* Advise aircrews and record on ATIS * Evacuate Tower (70kts) * Take cover
Moderate Thunderstorm Warning	Large Hail ≥ 1/4" but < 3/4" in diameter and/or Winds ≥ 35 but < 50 kts (associated with thunderstorms)	* Advise aircrews and record on ATIS
Strong Wind Warning	Winds ≥ 35 but < 50 kts (not associated with thunderstorms)	* Advise aircrews and record on ATIS
Lightning Watch	Lightning potential exists w/in 5 NM of AAFB	* Advise aircrews and record on ATIS
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	
Freezing Precipitation Watch†	Any Intensity	* Advise aircrews and record on ATIS
Freezing Precipitation Warning†		
Blizzard Watch†	≥ 3 hours, sustained winds or gusts ≥ 30 kts, considerable falling and/or blowing snow, surface visibility ≤	* Advise aircrews and record on ATIS
Blizzard Warning†		

	1/4 SM (all criteria must be met)	
Heavy Snow Watch†	≥ 1/2" in 12 hrs	* Advise aircrews and record on ATIS
Heavy Snow Warning†		
Heavy Rain Watch	≥ 2" in 12 hrs	* Advise aircrews and record on ATIS
Heavy Rain Warning		
Crosswind Advisory	≥ 15 kts but < 20 kts	* Advise aircrews and record on ATIS
	≥ 20 kts but < 25 kts	
	≥ 25 kts but < 30 kts	
	≥ 30 kts	
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	* Advise aircrews and record on ATIS
Ceiling and Visibility Advisory	≤ 200FT AGL/1/2SM	* Advise aircrews and record on ATIS
Atmospheric Turbulence Advisory	≥ Moderate SFC-10,000FT AGL	* Advise aircrews and record on ATIS
Atmospheric Icing Advisory	≥ Moderate SFC-10,000FT AGL	* Advise aircrews and record on ATIS
Thermal Stress Caution Advisory	90°F - 99°F (32°C - 37°C)	* Advise aircrews and record on ATIS
Thermal Stress Danger Advisory	≥ 100°F (38°C)	* Advise aircrews and record on ATIS
Wind Chill Caution Advisory	≤ 32°F (0°C)	* Advise aircrews and record on ATIS
Wind Chill Danger Advisory	≤ -20°F (-29°C)	* Advise aircrews and record on ATIS
Surface Wind Advisory	≥ 20 but < 35 kts	* Advise aircrews and record on ATIS

NOTE: indicates a Weather watch or warning that triggers WF SWAP operations.

**Table A8.8. 97 OSS (OSAA) Customer Response Actions.**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	<ul style="list-style-type: none"> <li>* Activate SCN &amp; pass Message 2A/2B</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Tornado Warning†	Tornadic activity imminent/sighted	<ul style="list-style-type: none"> <li>* Activate SCN &amp; pass Message 3A/3B</li> <li>* Notify contractors working on the afd</li> <li>* Notify NAMO, DAFM, or AFM</li> <li>* Take shelter in the vault</li> </ul>
Severe Thunderstorm Watch†	Damaging Hail $\geq 3/4''$ in diameter and/or Damaging Winds $\geq 50$ kts	<ul style="list-style-type: none"> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Severe Thunderstorm Warning†		<ul style="list-style-type: none"> <li>* Activate SCN &amp; pass Message 1A/1B</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Damaging Wind Watch†	Winds $\geq 50$ kts (not associated with thunderstorms)	<ul style="list-style-type: none"> <li>* Notify contractors working on the afd</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Damaging Wind Warning†		
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	<ul style="list-style-type: none"> <li>* Notify contractors working on the afd</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Freezing Precipitation Watch†	Any Intensity	<ul style="list-style-type: none"> <li>* Notify contractors working on the afd</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Freezing Precipitation Warning†		
Blizzard Watch†	$\geq 3$ hours, sustained winds or gusts $\geq 30$ kts, considerable falling and/or blowing snow, surface visibility $\leq 1/4$ SM (all criteria must be met)	<ul style="list-style-type: none"> <li>* Notify contractors working on the afd</li> <li>* Notify AFLD 1/2/3 (if on afd)</li> <li>* Notify NAMO, DAFM, or AFM</li> </ul>
Blizzard Warning†		
Heavy Snow	$\geq 1/2''$ in 12 hrs	* Notify contractors working on the afd

Watch†		* Notify AFLD 1/2/3 (if on afd)
Heavy Snow Warning†		* Notify NAMO, DAFM, or AFM
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.9. 97 CES Customer Response Actions.**

Criterion		Customer Actions
Freezing Precipitation Watch†	Any Intensity	* Consider snow and ice plan activation
Freezing Precipitation Warning†		* Activate snow and ice plan
Blizzard Watch†	≥ 3 hours, sustained winds or gusts ≥ 30 kts, considerable falling and/or blowing snow, surface visibility ≤ 1/4 SM (all criteria must be met)	* Consider snow and ice plan activation
Blizzard Warning†		* Activate snow and ice plan
Heavy Snow Watch†	≥ 1/2” in 12 hrs	* Consider snow and ice plan activation
Heavy Snow Warning†		* Activate snow and ice plan
NOTE: † indicates a Weather watch or warning that triggers WF SWAP operations.		

**Table A8.10. 97 AMW/CP Customer Response Actions.**

Criterion		Customer Actions
Tornado Watch†	Potential for tornadic activity exists	* QRC #500A
Tornado Warning†	Tornadic activity imminent/sighted	* QRC #502
Severe Thunderstorm Watch†	Damaging Hail $\geq 3/4''$ in diameter and/or Damaging Winds $\geq 50$ kts	* QRC #500
Severe Thunderstorm Warning†		* QRC #501

Damaging Wind Watch†	Winds $\geq$ 50 kts (not associated with thunderstorms)	* QRC #500
Damaging Wind Warning†		* QRC #501
Moderate Thunderstorm Warning	Large Hail $\geq$ 1/4" but < 3/4" in diameter and/or Winds $\geq$ 35 but < 50 kts (associated with thunderstorms)	* QRC #501
Strong Wind Warning	Winds $\geq$ 35 but < 50 kts (not associated with thunderstorms)	* QRC #501
Lightning Watch	Lightning potential exists w/in 5 NM of AAFB	* QRC #500
Lightning Warning	Observed Lightning occurring w/in 5 NM of AAFB	* QRC #501
Blizzard Watch†	$\geq$ 3 hours, sustained winds or gusts $\geq$ 30 kts, considerable falling and/or blowing snow, surface visibility $\leq$ 1/4 SM (all criteria must be met)	* QRC #500
Blizzard Warning†		* QRC #501
Heavy Snow Watch†	$\geq$ 1/2" in 12 hrs	* QRC #500
Heavy Snow Warning†		* QRC #501
Heavy Rain Watch	$\geq$ 2" in 12 hrs	* QRC #500
Heavy Rain		* QRC #501

Warning		
Crosswind Advisory	$\geq 15$ kts but < 20 kts	* QRC #500
	$\geq 20$ kts but < 25 kts	
	$\geq 25$ kts but < 30 kts	
	$\geq 30$ kts	
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	* QRC #500
Ceiling and Visibility Advisory	$\leq 200$ FT AGL/1/2SM	* QRC #500
Low-Level Wind Shear Advisory	below 2,000FT AGL w/in 5NM	* QRC #500
Ceiling and Visibility Advisory	$\leq 200$ FT AGL/1/2SM	* QRC #500
Atmospheric Turbulence Advisory	$\geq$ Moderate SFC-10,000FT AGL	* QRC #500
Atmospheric Icing Advisory	$\geq$ Moderate SFC-10,000FT AGL	* QRC #500
Thermal Stress Caution Advisory	90°F - 99°F (32°C - 37°C)	* QRC #500
Thermal Stress Danger Advisory	$\geq 100$ °F (38°C)	* QRC #500
Wind Chill Caution Advisory	$\leq 32$ °F (0°C)	* QRC #500
Wind Chill Danger Advisory	$\leq -20$ °F (- 29°C)	* QRC #500
Surface Wind Advisory	$\geq 20$ but < 35 kts	* QRC #500

**Table A8.11. Platform Limitations.**

LIMITATIONS OF AAFB PLATFORMS
-------------------------------

PLATFORM	Max X-Wind	T-Storm Limits	Winter Wx Limits	CIG (FT) /VIS (SM)	RVR (FT)
C-17	30 kts / Transition = 25 kts	No TS w/in 5nm (Tactical Drop) No TS w/in 10nm (<23K' AGL) No TS w/in 20nm (>23K' AGL)	No flight in severe icing	200 / 1/2; Transition = 300 / ¾	1600'; Transition = 4000'
KC-135	25 kts / Transition = 15 kts	No TS w/in 10nm	No flight in severe icing	200 / 1/2; Transition = 300 / ¾	1600'; Transition = 4000'
Practice Engine Failure Maneuvers	15 kts			<u>Day:</u> Circling mins or 600/2 <u>Night:</u> Greater of 1000/2 or circling mins	

**Table A8.12. Mission Limiting and Impacting Criteria.**

ACFT	WEATHER CONDITION	IMPACT/LIMITATION	MEF AMEND REQ'D
<b>TAKE-OFF/LANDING MISSION LIMITING CONDITIONS</b>			
ALL	Observed/Forecast Moderate Icing	Short periods through Moderate Icing (< 10 mins)	
<b>TAKE-OFF/LANDING MISSION IMPACTING CONDITIONS</b>			
ALL	Tornado (Forecast/Observed)	No takeoffs/landings	X
	Hail (Any Size Forecast/Observed)	No takeoffs/landings	X
	Damaging Winds $\geq$ 50 kts (Forecast/Observed)	No takeoffs/landings	X
	Observed Thunderstorm/Lightning w/in 5NM	No takeoffs/landings	X
	Freezing Precipitation (Forecast/Observed)	No takeoffs/landings	X
	Observed/forecast Severe Icing/Turbulence	No takeoffs/landings	X
	Ceilings/Visibility $\leq$ 200ft/ 1/2 SM	No takeoff (unless takeoff alternate is filed)	X
	1/2" of snow/slush/water on RWY	No takeoffs/landings	

	RVR < 1600ft	No takeoffs/landings (unless operational necessity)	
KC135	Strong Winds $\geq$ 35 kts (Forecast/Observed)	Takeoffs/landings require OG/CC waiver	X
	Crosswinds > 25 kts (dry)/15 kts (wet)	No takeoffs/landings	X
	Wind shear Loss (>15kts)	No takeoffs/landings	X
	RCR < 04	No takeoffs/landings	
C17	Tail Wind Component (>10 kts)	No takeoffs	
	Max Wind 40kts (any direction)	No takeoffs	X
	Crosswinds >30 kts (dry)/30 kts (wet)	No takeoffs	X
	RCR < 03	No takeoffs	
	Tail wind Component (> 10 kts)	No takeoffs	
	Head wind Component (> 40 kts)	No takeoffs	
TAKE-OFF ALTERNATE/DIVERT LIMITING CONDITIONS			
ALL	Observed/Forecast conditions < 600ft/2SM (2hr flight time)	Location cannot be used as a takeoff alternate (precision approach)	
	Observed/Forecast conditions < 800ft/2SM (2hr flight time)	Location cannot be used as a takeoff alternate (non-precision approach)	
	Forecast conditions less than published approach mins	File 2 Alternates	
	Forecast Surface winds exceed crosswind limits (cor for RCR)	File 2 Alternates	
TAKE-OFF ALTERNATE/DIVERT IMPACTING CONDITIONS			
ALL	Observed Visibility/Ceiling < 200ft/ ½ SM (w/in 30min flight time)	Location cannot be used as a takeoff alternate	
	RVR < 2400ft (w/in 30 min flight time)	Location cannot be used as a takeoff alternate	
	Observed conditions < 500 ft/1SM above approach mins (2hr flight time)	Location cannot be used as a takeoff alternate	
	Observed/Forecast conditions < 600ft/2SM (2hr flight time)	Location cannot be used as a takeoff alternate (precision approach)	
LANDING/DIVERT LIMITING/IMPACTING CONDITIONS			
ALL	Forecast divert landing weather < 500ft/2SM	Location cannot be used	
	Forecast crosswinds out of landing limits	Location cannot be used	
APPROACH LIMITATIONS/IMPACTS			
C17	Observed Ceiling < 200ft	No Circling Approach	X



	Observed Visibility < 1/2 SM	No Circling Approach	X
<b>TRANSITION (TOUCH-N-GO LIMITING/IMPACTING CONDITIONS)</b>			
ALL	Ceiling < 300ft and/or Vis < 3/4 SM	No touch-n-go's	X
	Ceiling < 2000ft/3SM	Cannot fly VFR at KLTS	X
	RVR < 4000ft	No touch-n-go's	
	Slush on RWY (any breaking action)	No touch-n-go's	
	Any Weather Warning Criteria Impacting Takeoffs/Landings as defined above		X
KC135	RCR < 09	No touch-n-go's	
	Crosswind Component $\geq$ 15kts	No touch-n-go's	
	Ceiling < 2000ft/3SM	Limited VFR available	X
	Ceiling < 1500ft/3SM	No VFR available	X
C17	RCR < 12	No touch-n-go's	
	Crosswind Component > 25 kts (w/ IP)	No touch-n-go's	X
<b>ENROUTE WEATHER LIMITATIONS</b>			
ALL	Thunderstorms En-route	Avoid by 20NM at or above FL230	
	Thunderstorms En-route	Avoid by 10NM below FL230	
	Heavy Rain showers en-route	Avoid by 5NM	
	FL within 5000ft of freezing level in cloud	Avoid area due to high potential for lightning/electrostatic discharge	
	Gust Fronts and/or Rapidly Moving Thunderstorms En-Route	Avoid	
<b>ENROUTE WEATHER IMPACTS</b>			
ALL	Observed or Forecast Moderate mountain wave turbulence	No flight through area	X
ALL	Observed or Forecast Severe Icing (any type)	Flight into area is prohibited	X
	Observed or Forecast Severe Turbulence	Flight into area is prohibited	X
<b>AIR REFUELING MISSION LIMITING CONDITIONS</b>			
ALL	Observed/Forecast Moderate Icing	Short Periods through Moderate Icing (<10 min)	
<b>AIR REFUELING MISSION IMPACTING CONDITIONS</b>			
ALL	Severe Turbulence/Icing on A/R track	Do not launch mission	X
	Moderate turbulence encountered on A/R track	Terminate air refueling	X
	FL Visibility < 1NM	Do not approach tanker in A/R track	X
	FL Visibility < 2NM	Do not approach tanker in	X

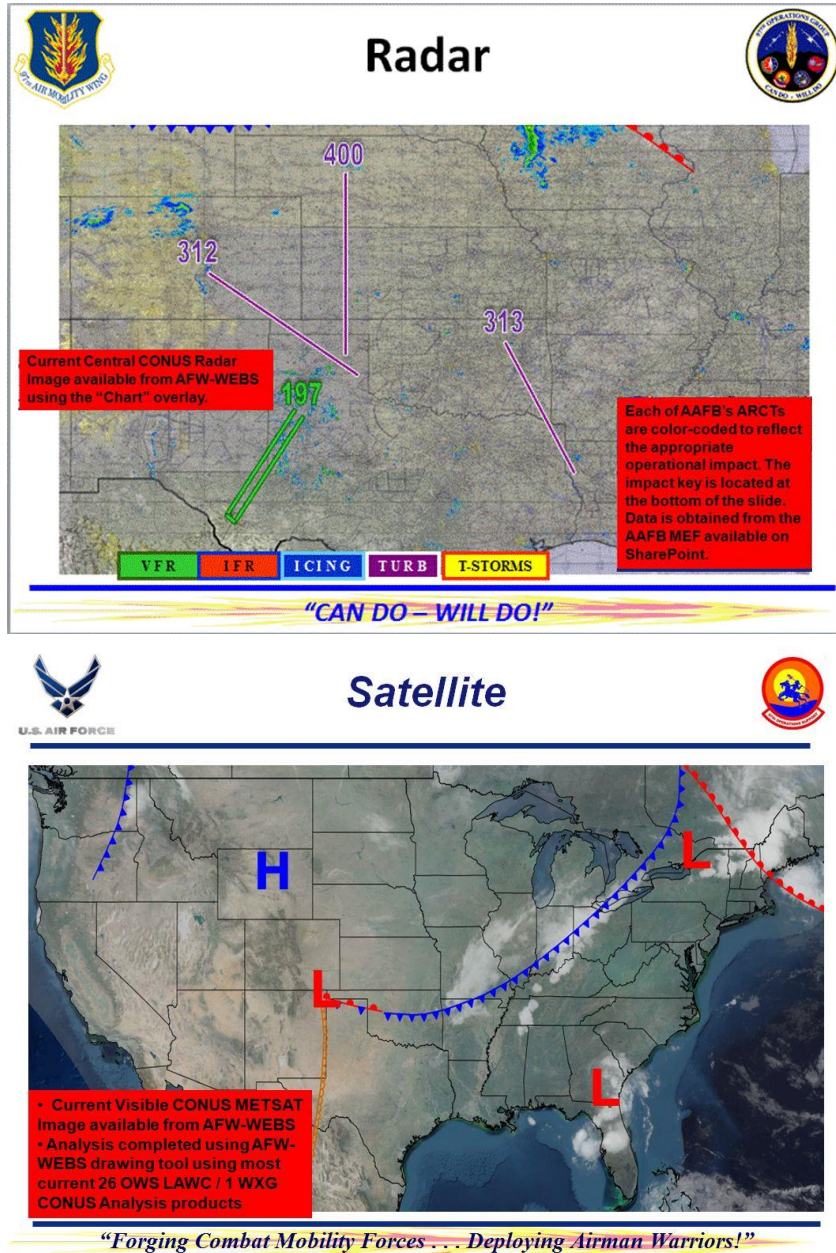
		A/R track (Tanker Cell Only); No formation A/R	
<b>MILITARY TRAINING ROUTE MISSION IMPACTS/LIMITATIONS</b>			
C17	IR Routes	No limitations on CIG/VIS	
	VR Routes	3000ft/5SM	X
	SR Routes	1500ft/3SM or as published in AP1B	X
<b>DROP ZONE MISSION LIMITATIONS</b>			
C17	Ceiling/Visibility < 1500ft/1/2 SM	Student restriction	
	NIGHT VMC CIG/VIS < 2000ft/3SM	Air Drops not recommended	
	Heavy Precipitation at Drop Zone	Air Drops not recommended	X
	SFC wind > 17 kts	No heavy equipment drops	X
<b>DROP ZONE LIMITATIONS</b>			
C17	Ceiling/Visibility < 300ft/1/2 SM	No Air Drops	X
	Heavy Precipitation at Drop Zone	Air Drops not recommended	
	SFC wind > 17 kts	No heavy equipment drops	X
	Night VMC Restriction	2000ft/3SM	X
<b>NVG OPERATIONS LIMITATIONS</b>			
C17	Ceilings/Visibility ≤ 1500ft/3SM	Student restriction	
	Crosswind ≥ 20kts (>15kts no NVG training)	Need OG/CC approval to continue ops	
<b>NVG OPERATIONS IMPACTS</b>			
C17	Ceilings/VIS < than 600ft / 2SM	Need OG/CC approval to continue ops	X
	Ceilings/VIS < 600 ft/2 SM		
	Crosswind ≥ 20kts	NVG ops prohibited	X
<b>TACTICS OPERATIONS MISSION IMPACTS</b>			
ALL	Ceiling below 7000' AGL	No local tactical approaches	X

## Attachment 9

## SAMPLE STAFF WEATHER PRODUCTS

**A9.1. Staff Weather Briefing Products.** Staff weather briefing products serve as a vital method of fulfilling the staff meteorological requirements leveraged on the WF as discussed in Chapter 6 of this instruction. Figures A9.1-A9.4 provide sample staff weather products and information on format and decoding.

**Figure A9.1. Staff Weather Briefing/Commander's Senior Staff Briefing Sample**



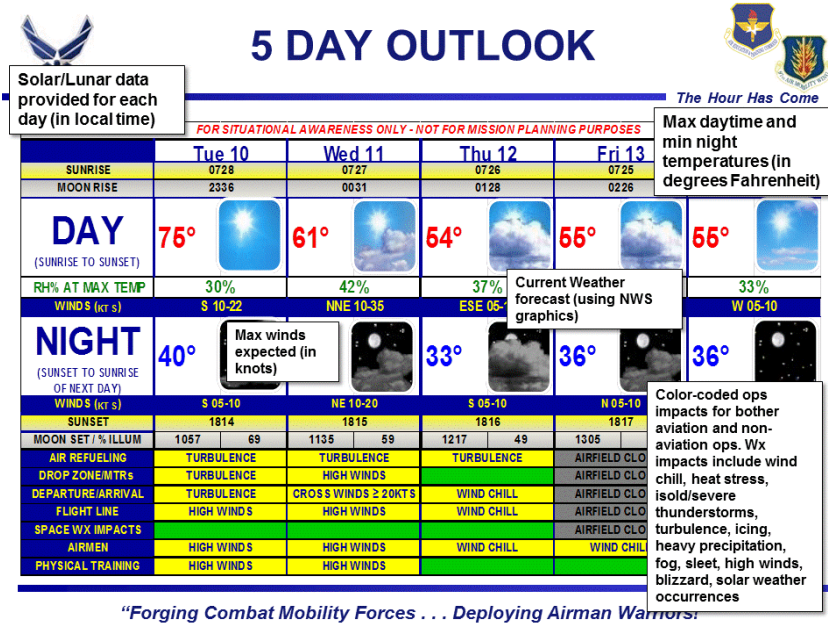
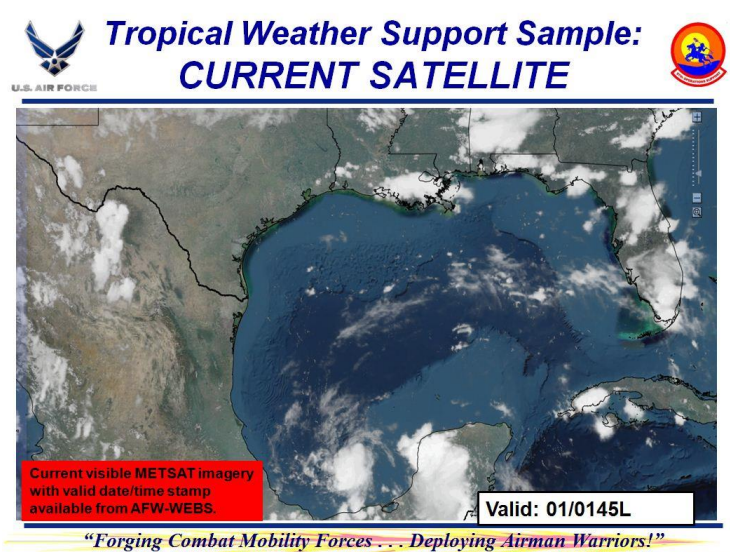
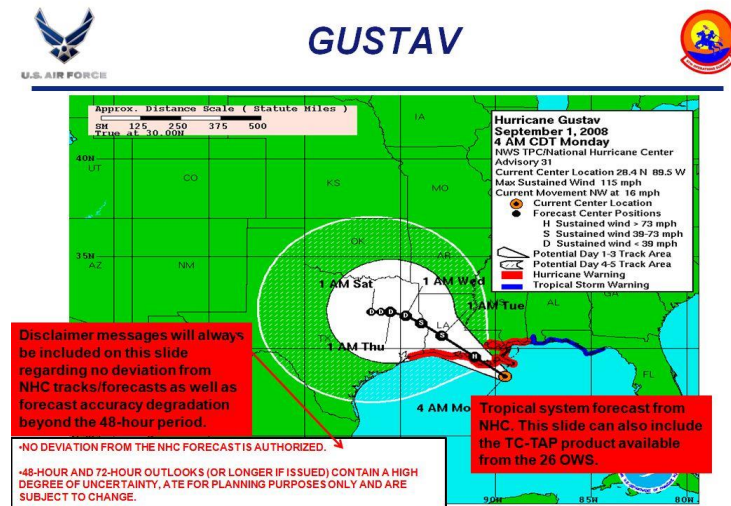


Figure A9.2. Tropical Weather Support Briefing Package Sample.







"Forging Combat Mobility Forces . . . Deploying Airman Warriors!"

10

**STORM NAME FORECAST**

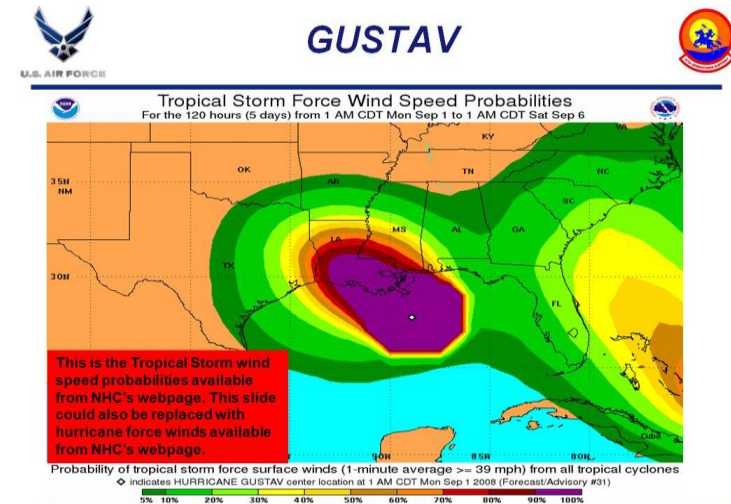
U.S. AIR FORCE

Forecast Period	Forecast Valid Time (Local)	Coordinates	Forecast Wind Speeds	Location
INITIAL	01/0400L	28.4N 89.5W	100 KTS	15 NM off LA coast
12-HR VALID TIME				
24-HR VALID TIME				
36-HR VALID TIME				
48-HR VALID TIME				
72-HR VALID TIME				
96-HR VALID TIME				

This slide details the location (coordinates), forecast wind speeds at the location, and location for up to a 96-hour period. This data is obtained from NHC or the 26 OWS TC-TAP products.

"Forging Combat Mobility Forces . . . Deploying Airman Warriors!"

11



"Forging Combat Mobility Forces . . . Deploying Airman Warriors!"

12

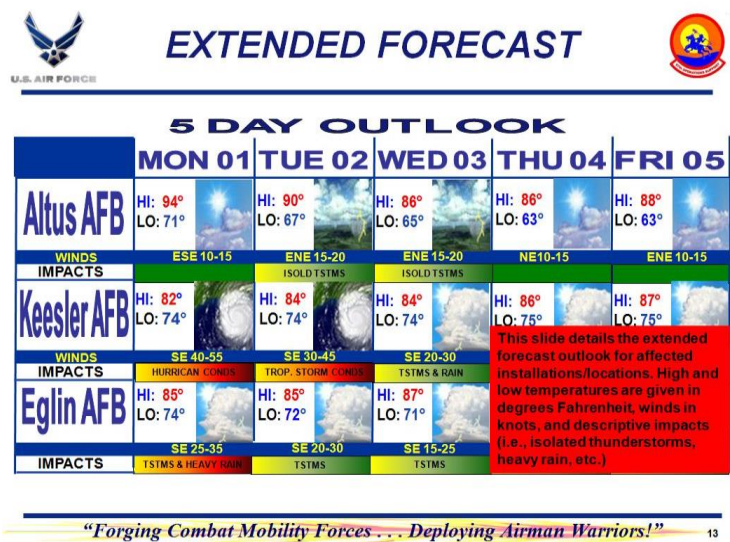
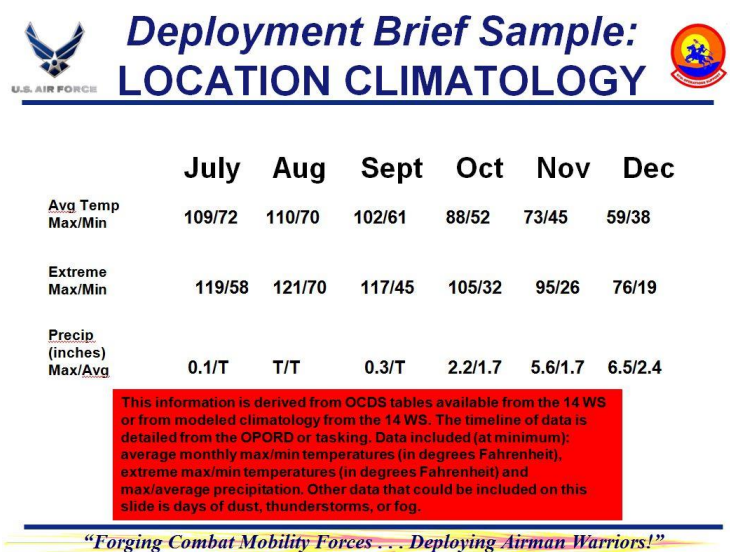


Figure A9.3. Deployment Briefing Weather Brief Sample.



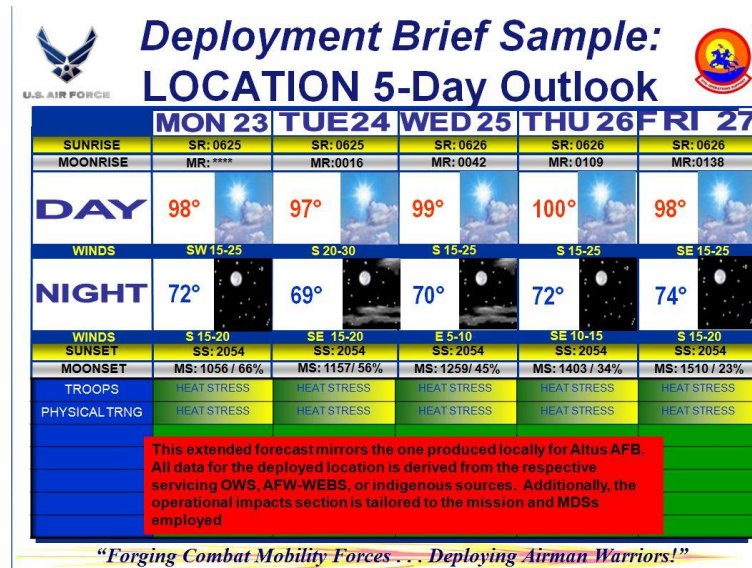
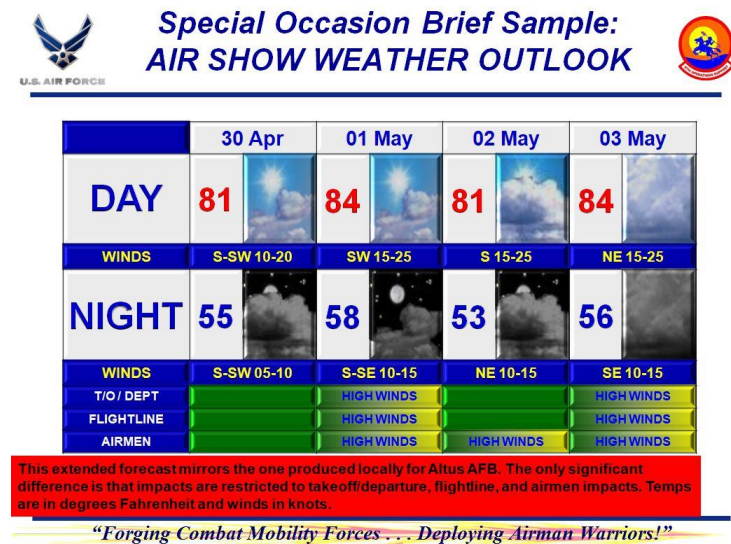


Figure A9.4. Special Occasion Weather Brief Sample.





## Attachment 10

## SAMPLE MISSION WEATHER PRODUCTS

**A10.1. Planning Weather.** Planning weather is available on the WF SharePoint page. The data is produced during the weather technician's swing shift for the next flying day. When the airfield is closed on weekends and holidays, planning weather for the next flying day is compiled on the WF swing shift prior to airfield closing and will be posted prior to the airfield reopening. Figures A10.1-A10.6 provide the planning weather sample, format, and decoding.

**Figure A10.1. Local Planning Weather Sample, Format, and Decoding.**

ALTUS AFB/PATTERN PLANNING FORECAST												VALID: 13-Mar-15		FORECASTER: DWW													
BMNT		1156		SUNRISE		1251		SUNSET		0042		EENT		0137		MOONRISE		0713		MOONSET		1750		% ILLUM		55	
WIND		X		VIS		WX		SKY CONDITION						HAZARDS													
02010KT		05		7				SKC																			
BECMG 1718 02015G25KT		13		7				FEW080																			
BECMG 0001 36010KT		02		7				BKN080						LGT RIME ICG 080-100													



Figure A10.3. Local Planning Weather Sample, Format, and Decoding (Transition Bases).

CLINTON/SHERMAN PLANNING FORECAST					
	WIND	X	VIS	WX	HAZARDS
	02010KT	05		SKC	
BECMG 1718	02015G25KT	13		FEW080	
BECMG 0001	36010KT	02		BKN080	
AMARILLO PLANNING FORECAST					
	WIND	X	VIS	WX	HAZARDS
	01015G25KT	12	7	SKC	
BECMG 0203	36005KT	03	7	SCT060	
FT. STIL PLANNING FORECAST					
	WIND	X	VIS	WX	HAZARDS
	02010KT	05		SKC	
BECMG 1718	02015G25KT	13		FEW080	
BECMG 0001	36010KT	02		BKN080	

**Format:** Weather data is in TAF format to include clouds, visibility, weather, winds, and hazards. In addition, a four-hour breakdown of forecast maximum temperature, minimum altimeter and pressure altitude is provided.

This information is provided for mission planning and training and is NOT amended.

**Decoding:**

Winds are measured in magnetic degrees and knots; surface visibility is measured in SM; weather conditions follow TAF format; Min ALSTG measured in inches; max temp measured in °C; Max PA is measured in feet

Figure A10.4. Local Planning Weather Sample, Format, and Decoding (Drop Zones).

SOONER DROPZONE PLANNING FORECAST					
	WIND	VIS	WX	SKY CONDITION	HAZARDS
	30012	7		SKC	
BECMG 2324	15009	7		SCT250	
FL WIND TEMP					
	030	35025	-06		
	015	35025	-03		
	010	33020	00		
	005	31010	00		

**Format:** Weather data is in TAF format to include clouds, visibility, weather, winds, and hazards. In addition, forecast winds/temperatures are provided for flight levels 005, 010, 015, and 030.

This information is provided for mission planning and training and is NOT amended.

**Delivery Method:**

- Available on the WF SharePoint page at:

[https://97amw.portal.altus.af.mil/sites/OG/oss/weather/MEF/58\\_AS\\_Planning%20WX.aspx](https://97amw.portal.altus.af.mil/sites/OG/oss/weather/MEF/58_AS_Planning%20WX.aspx)

**Decoding:**

Winds are measured in magnetic degrees and knots; surface visibility is measured in SM; weather conditions follow TAF format; temp measured in °C; FL winds measured in true degrees and knots

Figure A10.5. Take Off Planning Data (TOLD) Weather Sample, Format, Decoding, and Delivery Method.

Monday, November 29, 2010					
ALTUS AFB TAKE OFF FORECAST DATA					
VALID:	291800Z-300800Z	FCSTR:	CSF		
Winds (M)	TIME	TEMP °C	ALSTG	PA	
18Z - 20Z	32012G18KT	14-16			
TEMPO 1820	320015G25KT	16-18			
BECMG 1920	33015G25KT	18-20	12	29.67	1632
BECMG 2223	33012G18KT	20-22	13	29.7	1602
BECMG 0001	34012KT	22-24	11	29.72	1582
		24-02	09	29.75	1552
		02-04	06	29.78	1522
		04-06	03	29.8	1502
		06-08	00	29.82	1482
KCSM TAKE OFF FORECAST DATA					
VALID:	291800Z-300600Z	FCSTR:	CSF		
Winds (M)	TIME	TEMP °C	ALSTG	PA	
18Z - 19Z	29018G28KT	14-16	7	29.62	2232
BECMG 1819	32015G25KT	16-18	9	29.64	2202
BECMG 2021	31015G25KT	18-20	10	29.67	2172
BECMG 0001	33012G18KT	20-22	11	29.7	2142
		22-24	10	29.72	2122
		24-02	7	29.75	2092
		02-04	4	29.78	2062
		04-06	0	29.8	2042
McCONNELL AFB TAKE OFF FORECAST DATA					
VALID:	291800Z-300900Z	FCSTR:	CSF		
Winds (M)	TIME	TEMP °C	ALSTG	PA	
18Z - 19Z	22015G25KT	14-16	07	29.62	1671
BECMG 1819	32020G30KT	16-18	09	29.64	1651
BECMG 0001	34012G18KT	18-20	10	29.67	1621
		20-22	11	29.7	1591
		22-24	10	29.72	1571
		24-02	07	29.75	1541
		02-04	04	29.78	1511
		04-06	00	29.8	1491

**Format:** This product is created for AAFB, Clinton Sherman, Amarillo, and McConnell AFB. Information is broken into 2-hour increments to indicate temperature, altimeter, pressure altitude and winds for all locations

**Delivery Method:**

- Automatically generated each time the MEF is updated.

- Hard copies are available on the forecaster counter in the WF

**A10.2. Mission Execution Forecast.** The MEF is a tailored product for 97 AMW aircraft with mission specific data for AAFB aircrews. Weather criterion is color coded to indicate mission limiting (Yellow) and mission impacting (Red). The MEF is categorized into three sections: AAFB/Local Pattern Forecast, AR Tracks, Transitions, Dropzone, and Military Training Routes.

The MEF is available on the WF SharePoint page. The MEF is updated NLT 0430L, 1300L, or as unforecast conditions are expected to occur. Figures A10.7-A10.11 provide the MEF sample, format, and decoding.

Figure A10.6. MEF Sample, Format, and Decoding (AAFB/Local Pattern Forecast).

ALTUS AFB/LOCAL PATTERN FORECAST										VALID:	26/1430Z- 27/0716Z	MEF #	26-01	FORECASTER:	JL
BMNT	1040	SUNRISE	1143	SUNSET	0145	EENT	0247	MOONRISE	0738	MOONSET	2225	% ILLUM	23%		
SPACE WX DATA:		HF	UHF	GPS	CURRENT RWY / COND		17 /	DRY	MIN TEMP LAST		28C				
WIND		X	VIS	WX	SKY CONDITION		HAZARDS		TIME		MAX	MIN	MAX		
VRB06KT		6	7		FEW160				13-15		33	29.84	1462		
BECMG 1819	18012KT	2	7		FEW090		OCNL LGT TURB SFC		15-17		38	29.80	1502		
BECMG 0001	15012KT	4	7		FEW100				17-19		40	29.74	1562		
BECMG 0304	14012KT	6	7		FEW100		LLWS 007/19035		19-21		41	29.70	1602		
									21-23		42	29.70	1602		
									23-01		41	29.70	1602		
									01-03		39	29.71	1592		
									03-05		33	29.73	1572		
									05-07		34	29.75	1552		
CLIMB		SFC-050	20010	050-100	22010	100-150	23010	150-200	30010	200-250	35010				
NOGS Data		1800L/0000Z	1900L/0100Z	2000L/0200Z	2100L/0300Z	2200L/0400Z	2300L/0500Z	0000L/0600Z	0100L/0700Z	0200L/0800Z					
% Illum   mLux		92%   9999	92%   9999	92%   9999	92%   9999	92%   3.1	92%   3.1	91%   41.9	91%   63.6	91%   63.6					

**Decoding:**  
A – Valid Times (Z) (includes "UPDATE" or "AMD" as appropriate); valid times are from first takeoff until last scheduled land; MEF #: Wx Forecaster's Initials  
B – Solar/Lunar Data (Z)  
C – Space Weather Data (G – favorable; Y – Marginal Impacts; R – Severe Impacts; Current RWY/Conditions (Determined from AM Ops) and Min temp win last 24 hrs (in °C)  
D – Forecast conditions (magnetic winds in knots; x-winds in knots; Vis in SM; wx conditions in TAF format; sky condition (TAF Format, heights AGL); Hazards (Icing, Turbulence, TSTMS, LLWS, etc.)  
E – Max Temp (°C); MIN ALSTG (inches); Max PA (Feet)  
F – Climb winds (average true winds encoded in knots)

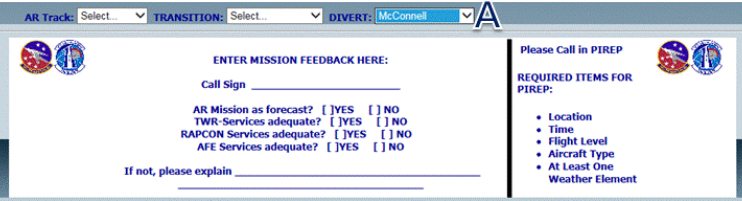
Figure A10.7. MEF Sample, Format, and Decoding (AR Forecasts).

AR Track		AR 400	TRANSITION:	Select...	DIVERT:	Select...
AR400 FORECAST (ALL HEIGHTS IN MSL)						
VALID:		26/1500Z - 27/0524Z		FORECASTER:		JL
ENROUTE DATA:		CLOUDS 090 FEW 200		WINDS/TEMP:		FL250 16005 -14 FL200 15005 -08
± 050:		HAZARDS NONE		MIN FZ LVL / LOC		160/ROUTE
CLOUDS		VIS	VIS	HAZARDS / REMARKS		FL WIND TEMP DEV
SKC AT FL		99				300 27020 -31 13
BECMG 2324	N 1/2 070 SCT 550CB 250 BKN 300LYRD	99	1	SCT TS MT550		250 27020 -16 19
	S 1/2 280 SCT 300LYRD	99	3			200 27020 -09 16
						150 200 2 16
						300 200 1 31 13
						250 250 1 16 19
						200 250 9 16

**Decoding:**  
A – Select desired AR track (312/400/313/197/104/105/Eureka/Lancer/Other defined track)  
B – Valid Time of Forecast, normally 30 mins prior to and one hour after scheduled use (Valid from Z to Z); Weather Forecaster's initials  
C – Enroute data (all values are forecasted +/- 5,000 feet of projected FL); Cloud heights are MSL; wind measured in true direction/knots; all temps are in °C  
D – Forecast conditions in TAF Format; First column Vis is FL Vis out of cloud (in meters); second column in FL Vis (measured in NM)  
E – FL winds in true degrees/knots ; temps in °C; and temp deviation measured in °C



**Figure A10.10. MEF Sample, Format, and Decoding (Divert Forecasts).**



**Decoding:**

These products come from ADDS. Under Divert drop-down on WF Sharepoint (A) select desired location and Pop up will bring up TAF (B)

**Aviation Digital Data Service (ADDS) B**

Output produced by TAFs form (1916 UTC 12 March 2015)  
found at <http://www.aviationweather.gov/adds/tafs/>

```

KIAB 121858Z AUTO VRB05KT 10SM CLR 22/01 A3020 RMK AO2 SLP224 T02180014
TAF KIAB 1218/1324 14012KT 9999 SKC QNH3009INS
BECMG 1305/1306 13006KT 9000 BR SCT015 QNH3010INS
BECMG 1311/1312 35006KT 4800 BR BKN013 BKN100 QNH3011INS
BECMG 1317/1318 03015G25KT 9999 NSW FEW040 SCT100 QNH3004INS
BECMG 1323/1324 02012KT 9999 SCT120 QNH3004INS TX25/1221Z TN07/1312Z
          
```

**A10.3. MEF-1/DD Form 175-1.** These briefings are tailored to resemble the DD Form 175-1 and are most commonly used for 97 AMW off-station missions. These briefings are developed utilizing the WF MEF. This product is available at the forecast counter located in Airfield Operations (Bldg. 185). The WF prepares these briefings upon request and briefs transient aircrews as duties permit. The MEF-1 and DD Form 175-1 are decoded IAW AFMAN 15-129V2, Attachment 2. Figure A10.12 provides the MEF-1 sample and format.



Figure A10.11. MEF-1 Sample and Format.

DATE <b>20100913</b>		TYPE AIRCRAFT/NUMBER/CALL SIGN <b>T38/TORO 01 &amp; 81</b>				DEPARTURE STATION/ETD <b>KLTS/0130Z</b>			
<b>TAKE OFF DATA</b>									
VALID TIME	WIND (KT)	VIS	WEATHER	THP	DP	SKY CONDITION	ALSTG	PA	
<b>0030</b> 10 <b>0230</b>	<b>17012G18</b> KT	<b>7</b>		<b>31</b> C	<b>20</b> C	<b>SCT070</b>	<b>29.95</b>	<b>+1352</b> FT	
WARNINGS/ADVISORIES <b>THERMAL STRESS CAUTION FLD UFM</b>				RCR/RSC <b>DRY</b>		REMARKS <b>DELAY +0:15</b>			
CLIMB WINDS: <b>SFC-050: 20010, 050-100: 22015</b>									
<b>ENROUTE DATA</b>									
SPACE WX DATA		HF: NO IMPACT MARGINAL SEVERE		UHF: NO IMPACT MARGINAL SEVERE		GPS: NO IMPACT MARGINAL SEVERE			
		<b>NO IMPACT</b>		<b>NO IMPACT</b>		<b>NO IMPACT</b>			
EMT: <b>1124</b>	SR: <b>1219</b>	SS: <b>0047</b>	EDT: <b>0142</b>	MR: <b>1819</b>	MS: <b>0417</b>	ILLUM: <b>29</b> %			
FLIGHT LEVEL/WIND/TEMP <b>FL 080 23010/13</b>									
MIN CEILING		LOCATION		MAX CLOUD TOPS		LOCATION		MIN FREEZING LVL	
<b>NONE</b>		<b>N/A</b>		<b>NONE</b>		<b>N/A</b>		<b>150</b> <b>KLTS</b>	
THUNDERSTORMS		COVERAGE		HT		LOCATION			
		<b>NONE</b>		<b>NONE</b>		<b>NONE</b>			
TURBULENCE		INTENSITY		LEVELS		LOCATION			
		<b>NONE</b>		<b>NONE</b>		<b>NONE</b>			
ICING		TYPE		INTENSITY		LEVELS		LOCATION	
		<b>NONE</b>		<b>NONE</b>		<b>NONE</b>		<b>NONE</b>	
<b>MISSION DATA</b>									
VALID TIME	LOCATION/FLIGHT LEVEL	CLOUD (HSL/AGL)		VIS	WEATHER/HAZARD	WINDS/THP			
<b>0115</b> 10 <b>0315</b>	<b>AR D2 LL</b>								
<b>0125</b> 10 <b>0325</b>	<b>AR D2 LL</b>								
<b>0135</b> 10 <b>0345</b>	<b>AR D2 LL</b>								
12 WINDS (AGL) / TMP									
SFC:		005:		010:		015:			
		020:		025:		030:			
REMARKS:									
<b>TRANSITION DATA</b>									
VALID TIME	STATION	WIND (KT)	VIS	WEATHER	THP	SKY CONDITION	ALSTG	PA	
<b>0115</b> 10 <b>0315</b>		<b>H/T</b>			<b>C</b>			<b>FT</b>	
<b>0125</b> 10 <b>0325</b>		<b>H/T</b>			<b>C</b>			<b>FT</b>	
HAZARDS/REMARKS:									
<b>RECOVERY/DESTINATION DATA</b>									
VALID TIME	STATION	WIND (KT)	VIS	WEATHER	THP	SKY CONDITION	ALSTG	PA	
<b>0115</b> 10 <b>0315</b>	<b>DESTAALTN KSPS</b>	<b>14006</b> <b>H/T</b>	<b>7</b>	<b>TEMPO 00-02</b>	<b>26</b> C	<b>BKN120</b>	<b>29.98</b>	<b>+975</b> FT	
<b>0125</b> 10 <b>0325</b>	<b>DESTAALTN KLAJ</b>	<b>15009</b> <b>H/T</b>	<b>7</b>	<b>TSRA BR</b>	<b>27</b> C	<b>BKN025CB</b>	<b>29.99</b>	<b>+1045</b> FT	
HAZARDS/REMARKS: <b>KLTS @ 0245Z 16007 7 FEW060 T28 A29.97 PA+1332</b>									
<b>BRIEFING DATA</b>									
STAFF TIME	INITIALS	PERSON BRIEFED	REBRIEF TIME	INITIALS	PERSON BRIEFED	PHSY LOCATION	FREQUENCY		
<b>E</b>	<b>Z</b>		<b>E</b>	<b>Z</b>		<b>KLTS</b>	<b>239.8</b>		
REMARKS:									

**A10.4. Tactical Decision Aid Support.** TAWS data to include light data including Solar Elevation, Solar Azimuth, Lunar Elevation, Lunar Azimuth, % Disc Illumination, and Millilux values is available on the WF SharePoint page and available during MEF and Planning Weather publication times in support of NVG operations. Figure A10.13 provides a TAWS Light Data Sample.

Figure A10.12. TAWS Light Data Sample.

NVG MISSION LUNAR ILLUMINATION (mLux) DATA							
DATE TIME(L)	TIME (Z)	SOLAR ELEVATION	SOLAR AZIMUTH	LUNAR ELEVATION	LUNAR AZIMUTH	% DISC ILLUM	MLUX
30 / 1900	0500Z	-39	202	02	202	11%	1.62
30 / 2000	0600Z	-39	202	02	202	11%	1.62
30 / 2100	0700Z	-39	202	02	202	11%	1.62
30 / 2200	0800Z	-39	202	02	202	11%	1.62
30 / 2300	0900Z	-39	202	02	202	11%	1.62
01 / 0000	1000Z	-39	202	02	202	11%	1.62
01 / 0100	1100Z	-39	202	02	202	11%	1.62
01 / 0200	1200Z	-39	202	02	202	11%	1.62

Available at:

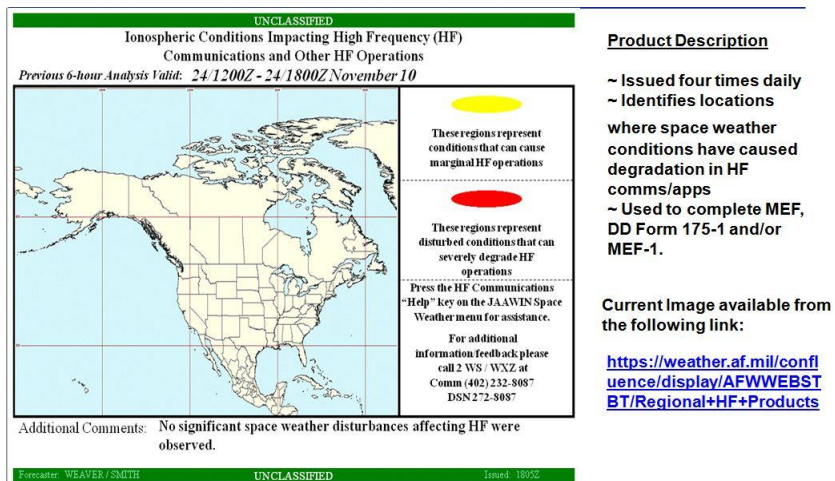
[https://97amw.portal.altus.af.mil/sites/OG/oss/weather/MEF/58\\_AS\\_Planning%20WX.aspx](https://97amw.portal.altus.af.mil/sites/OG/oss/weather/MEF/58_AS_Planning%20WX.aspx)

## Attachment 11

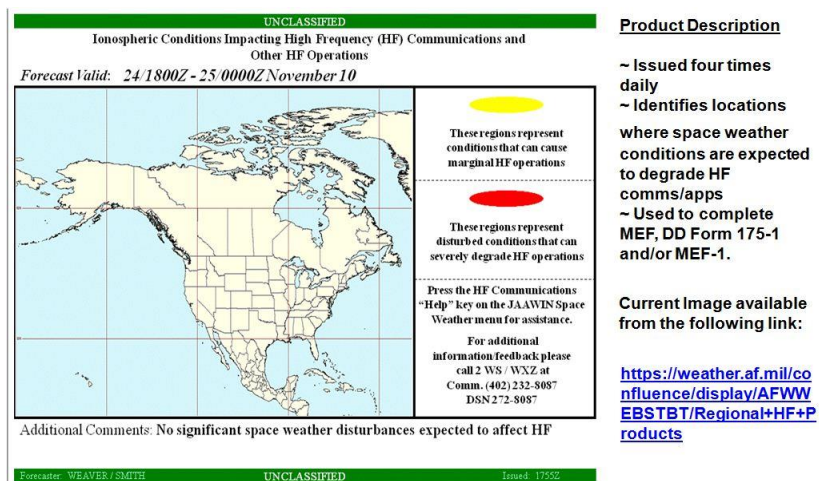
## SAMPLE SPACE WEATHER PRODUCTS

**A11.1. General.** Many of our weapons, communications and navigations systems use radio waves: High Frequency (HF), Ultra High Frequency (UHF), which can be rendered useless by electro-magnetic radiation from the sun. This attachment contains some products available to AAFB personnel and used by weather technicians to produce MWPs.

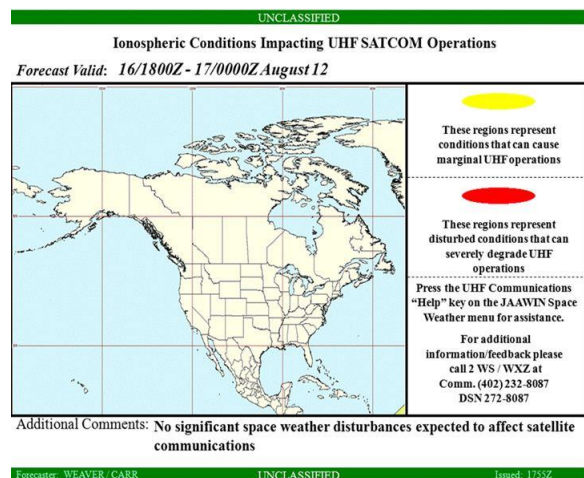
**Figure A11.1. Sample Global/Regional 6-Hr Analysis of Ionospheric Conditions Impacting HF Propagation.**



**Figure A11.2. Sample Global/Regional 6-Hr Forecast of Ionospheric Conditions Impacting HF Propagation.**



**Figure A11.3. Global/Regional 6-Hr Forecast of Ionospheric Conditions Impacting UHF SATCOM.**

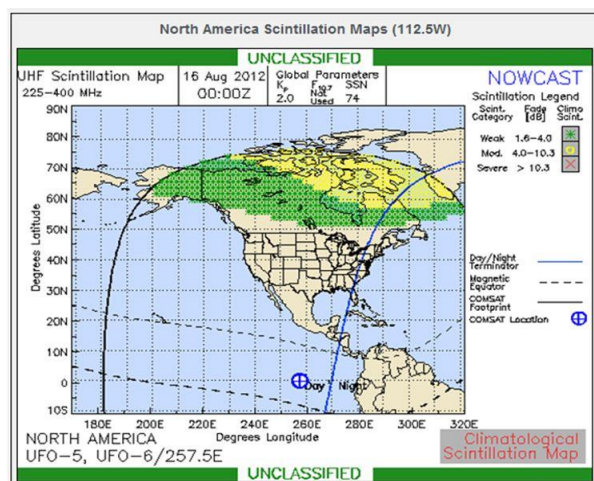


#### Product Description

~ Issued four times daily  
~ Identifies locations where space weather conditions are expected to degrade UHF comms/SATCOM  
~ Used in tandem with UHF Scintillation NOWCAST and FORECAST products  
~ Used to complete MEF, DD Form 175-1 and/or MEF-1.

Current Image available from the following link:  
<https://weather.af.mil/confluence/display/AFWWW/EBSTBT/Regional+HF+Products>

**Figure A11.4. Global/Regional UHF Scintillation NOWCAST and FORECAST product.**

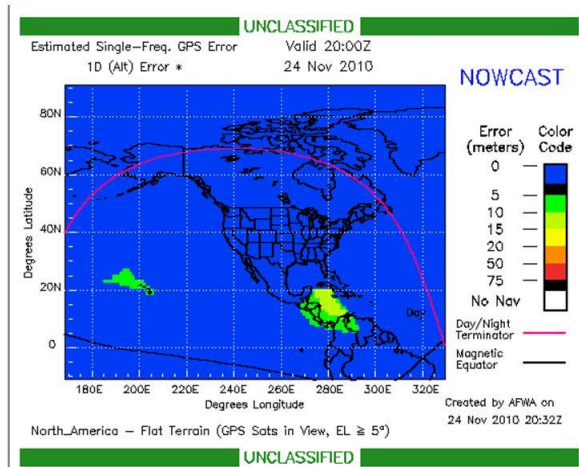


#### Product Description

~ Issued four times daily  
~ Identifies locations where space weather conditions are expected to degrade UHF comms/SATCOM between 225 MHz and 400 MHz  
~ Used to complete MEF, DD Form 175-1 and/or MEF-1.

Current Image available from the following link:  
<https://weather.af.mil/confluence/display/AFWWW/EBSTBT/Regional+HF+Products>

**Figure A11.5. Estimated GPS Single-Frequency GPS Error Map.**



#### Product Description

~ Issued every hour  
~ Identifies estimates of current single frequency GPS accuracy based on calculations that account for ionospheric-induced errors  
~ Not valid for dual frequency GPS receivers  
~ Used to complete MEF, DD Form 175-1 and/or MEF-1.

Current Image available from the following link:  
<https://weather.af.mil/confluence/display/AFWWW/EBSTBT/Regional+GPS+Maps>



Figure A11.6. High Altitude Radiation Dosage Charts.

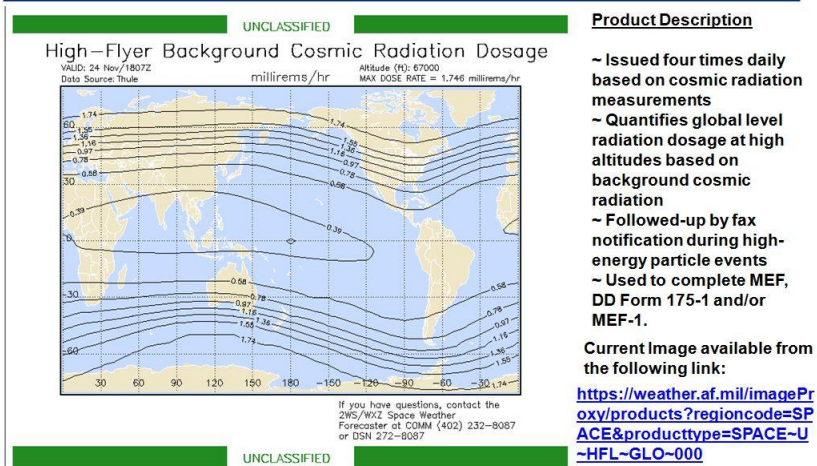


Figure A11.7. Events and Impacts Slide.

